Vegetable materia medica of the United States

William Paul Crillon Barton

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VEGETABLE MATERIA MEDICA

OF THE

UNITED STATES:

OR,

MEDICAL BOTANY.

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VEGETABLE MATERIA MEDICA

OF THE

UNITED STATES;

OR

MEDICAL BOTANY:

CONTAINING

A BOTANICAL, GENERAL, AND MEDICAL HISTORY, OF MEDICINAL PLANTS INDIGENOUS TO THE UNITED STATES.

ILLUSTRATED BY

COLOURED ENGRAVINGS,

MADE AFTER ORIGINAL DRAWINGS FROM NATURE, DONE BY THE AUTHOR.

BY WILLIAM P. C. BARTON, M. D.
SURGEON IN THE UNITED STATES' NAVY, AND OF THE NAVAL HOSPITAL AT PHILADELPHIA:
AND
PROFESSOR OF BOTANY IN THE UNIVERSITY OF PENNSYLVANIA.

VOLUME II.

PHILADELPHIA:
PUBLISHED BY M. CAREY & SON, CORNER OF FOURTH AND CHESNUT STREETS.
JOSEPH R. A. SKERRETT, PRINTER.
1818.

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EASTERN DISTRICT OF PENNSYLVANIA, TO WIT:

L. S.

BE IT REMEMBERED, That on the third day of December, in the forty-third year of the Independence of the United States of America, A. D. 1818, WILLIAM P. C. BARTON, of the said District, hath deposited in this office the title of a Book, the right whereof he claims as Author, in the words following, to wit: "Vegetable Materia Medica of the United States; or Medical Botany: containing a Botanical, General, and Medical History of Medicinal Plants, indigenous to the United States. Illustrated by coloured Engravings, made after original drawings from nature, done by the author. By William P. C. Barton, M. D. Surgeon in the United States' Navy, and of the Naval Hospital at Philadelphia: and Professor of Botany in the University of Pennsylvania. Volume II." In conformity to the act of the congress of the United States, entitled, "An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned."—And also to the act, entitled, "An act supplementary to an act, entitled, "An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies during the times therein mentioned," and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

D. CALDWELL, *Clerk of the Eastern District of Pennsylvania.*

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TO

SAMUEL EWING, ESQ.

AN ACCOMPLISHED SCHOLAR,

AND

AN EMINENT MEMBER OF THE PHILADELPHIA BAR:

THIS VOLUME,

IN EVIDENCE OF ESTEEM,

AND IN GRATITUDE FOR HIS LONG-TRIED FRIENDSHIP,

IS INSCRIBED

BY THE AUTHOR.

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PRELIMINARY OBSERVATIONS.

IN presenting the second volume of this work to the public, it may be proper to offer a few remarks, relative to the nature of the enterprise, and the progress which has been made towards achieving it. As soon as my attention was directed to the Botany of our country, it appeared to me obvious, that a rich treasure of Medicinal vegetables, remained imperfectly described and unknown. Considering, indeed, the vast extent of territory, and the luxuriance and number of the vegetables of the United States, its botany has been investigated with a surprising degree of zeal and research. But, unfortunately, only its nomenclatural botany, has hitherto excited much attention. I did believe, when I conceived the design of illustrating the medical botany of our country, that such a work, even though it were limited to the delineation and description of the known medicinal plants, or those supposed to be medicinal, would have the effect of directing a more general attention to this important subject, than had previously been bestowed, and of giving an impulse perhaps, to the studies and observations of those physicians and botanists whose qualifications and opportunities were equally propitious to investigations of this nature. And it must be confessed, I have had my anticipation, on this point, fully realized. To this work, and that of my fellow traveller in the same path, may perhaps be attributed, some

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of the eager curiosity and attention which our native medicinal plants now manifestly excite. Thus much may, it is hoped, with propriety be said. And if this work only perform the office of the finger-post on the road, which, though it stirs not one inch of the way itself, points out the right path to be pursued, it will not have been published in vain. Already the attention to this subject may be seen, in a late valuable edition of the Edinburgh Dispensatory, by Dr. Dyckman, of New York, in which more of our native medicines will be found, than have, heretofore, appeared in the American Dispensatories. And it is not doubted, that when the national Pharmacopœia, now meditated, is given to the world, the Materia Medica of the United States will not only be extensively used by our own physicians, but will be eagerly sought for by those of foreign countries. But, our Materia Medica is not the only worthy object of enquiry, to the botanist: the Materia Alimentaria of North America, is equally interesting. From an unfortunate race of human beings now rapidly disappearing, by the influence of the combined effects of warfare, civilization, and amalgamation with the whites, much valuable information might, in all probability be obtained, on the subject of their materia alimentaria.* For among the esculent vegetables of the Indians

* It is highly probable that among the manuscripts which were left by the late Professor Barton, much interesting information on this subject might be collected. His well known inquisitiveness, and his constant habit of recording, in however desultory a manner, the facts with which his enquiries made him acquainted, warrant the belief, that the public are deprived of some curious and very interesting knowledge, in conse-

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of our country, it has always been supposed there were some worthy of cultivation for the table. This has heretofore been prevented, in consequence of our ignorance of the identical plants, or precise species, which were used by the savages. The travels of Lewis and Clarke, have put us in possession of the Indian names of many native dietetic articles, and these names have occasionally been accompanied by imperfect descriptions. Not much more therefore than conjectures, could be expected to arise from such informal and unscientific accounts; and indeed, little else has resulted, on this subject, from the rich op-

quence of the cloak which has been thrown over his collections. Strange as it may appear, it is not the less true, that not a single one of these manuscripts, not even his lectures on Materia Medica,* has ever seen the light. The public is yet to be informed what has become of the industrious collections of that eminent man; and it is sincerely hoped they have not been recklessly destroyed. Though the author of this work, his own nephew, was engaged in the same pursuits which occupied much of the time and attention of the late Professor, not a single line of his manuscripts has ever been put into his hands, or seen by him; nor was his opinion even asked about the disposition of them. But on the contrary, he was refused a sight of such memorandums and notes as were asked to enable him to write an authentic account of his life, when called on so to do by the Philadelphia Medical Society, of which the Professor, at the time of his decease, was president. It has been deemed proper to make this public avowal, because it has been mentioned to the author, that some persons supposed him possessed of all the papers and collections of the late Professor Barton, designing by such intimation, to deprive the author of whatever credit his persevering exertions, in despite of discouraging and opposing obstacles, may have deserved.

* The manuscript lectures on Materia Medica, were sold to Mr. Dobson, more than two years since, *but have not yet been published.*

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portunities of that governmental expedition. It is well known, that no botanist or naturalist accompanied those travellers; although our ornithology might have been enriched by some new species of birds, or some interesting facts relative to the habits and migrations of known species, had the humble and entreating offer of the lamented Wilson,* to accompany the expedition, been accepted. It is neither my intention, nor my province, in this place, to make any animadversions on the direction of that great undertaking: but I cannot forbear to remark, that from the discoveries made by a botanical examination of the few plants brought by captain Lewis, we are warranted in the belief, that a very spendid harvest might have been reaped, had any competent botanist accompanied the party. I need only mention, in proof of this, the discovery of the plant which yields the *bread-root* of the Indians.

The *Opopanok*, the *Mockshaww*, the *wild-potatoe*, and the *hog-potatoe*,† are yet entirely unknown; at least the identical plants bearing these names, are not yet ascertained. They are, undoubtedly, native vegetables; and it was formerly supposed that some one or two of them,

* For an affecting account of the transaction here alluded to, I beg leave to refer to the masterly biographical sketch of his friend, by John Ord, Esq. prefixed to the tenth volume of Wilson's Ornithology, which was edited by this zealous naturalist.

† I am aware that the *convolvulus panduratus* has been called *hog-potatoe*, but whether it is really the plant so commonly recognised by that name formerly, is somewhat problematical.

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were aboriginal names for the common Irish-potatoe, (solanum tuberosum.) The enquiries and investigations, however, of the late Professor Barton, in relation to this subject,* while they prove, beyond the possibility of doubt, that the Irish-potatoe, as it is generally now called, is not a native of any part of North-America, sufficiently satisfy us, that neither of the vegetables under the above names, can be identical with that plant.

The travels of Baron Humboldt, which have so much enriched our knowledge, by details of the practical and œconomical uses of plants, acquaint us, that the inhabitants of Palma and Gomera make a composition out of the root of *Pteris aquilina* and barley-meal, which serves them for food.† This fern is plentifully distributed along the moist edges of woods, fields and bogs, all over the United States. It grows near the falls of Schuylkill, and indeed all along its western shores, and in Jersey, near the Delaware river. The Lenni-Lenappes, we well know, used two important dietetic articles, the Mockshauw, and a subterranean aquatic tuber, which has by some been conjectured to be the Sagittaria sagittifolia.‡ This, however,

* Tilloch's Philosophical Magazine.

† They grind the roots to powder, then mix it with the meal, and boil it. When thus prepared, it is termed *gofio*.

‡ While I have mentioned this plant, I may not inappropriately state, that the root seems to have been successfully used as a poultice, in cases of sphacelating ulcers.

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certainly is not the case; but the *Pteris aquilina* may be the plant meant under the name of *Mockshauw*. I throw this out as a mere suggestion; at the same time I ought to remark, that in perusing the "Materia Venenaria regni Vegetabilis," of Puihn, I met with an observation relative to Orontium aquaticum, (which also inhabits the borders of rivers, and such places as the Delaware Indians were said to have resorted to for their favourite Mockshauw,) which induced me to think it not improbable, that this is the plant intended by that name. The observation is as follows: "Orontii aquatici radix, quæ cineribus tosta Americanis sylvestribus cibo est, cruda ob acredinem hominibus toxifera habetur. Semina quoque, quæ bene siccata et cum aqua aliquoties cocta ferculum exhibent, cruda acerrima sunt."*

"The Indians had their sallads," we are told by the late Professor Barton, who remarks at the same time that the "*Indian sallad*," and the "*Shawnee sallad*," of the states of Kentucky and Ohio, are praised by the white settlers; and adds, "they are unknown to me."† It

An officer of the war department pointed out this plant to me in a marsh in the city of Washington, and informed me, that an officer in the army, with whom he was acquainted, had caused the plant to be dug up, the roots bruised, moistened, and applied to a very extensive and ill-conditioned ulcer, in which mortification had commenced, and that one or two applications of the poultice checked the progress of the mortification, and the sore healed kindly and rapidly.

* Materia Venenaria, p. 80.

† Collections for a Materia Medica, and Discourses on some of the principal desiderata of Natural History, read before the Philadelphia Linnæan Society.

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would perhaps be going too far to say, at this period of my information on the subject, that I had ascertained the plant to which these names refer; though I am certainly warranted in saying, that the facts I am possessed of render it extremely probable, that the *Shawnee* or *Indian sallad* of the state of Kentucky, is the Hydrophyllum appendiculatum.*

But these are merely a few instances of the desiderata on this point. From an investigation of so rich a subject, much novel and interesting information must necessarily be acquired.

* Some time since, Dr. Short, of Hopkinsville, Kentucky, sent a specimen of a plant to a friend in this city, with the following note: "I send you a plant, vulgarly known in Ohio, Kentucky, and Tennessee, by the name of *Woollen-breeches*. The young shoots are eaten in the spring, as a sallad, and highly praised by all who eat them. I could wish to know the name of this plant, which I understand Mr. Correa was very anxious to see, when in this part of the world." The plant in question proves on examination, to be Hydrophyllum appendiculatum. I subsequently received a better specimen from Dr. Eberle, of Lancaster, who obtained it, I believe, from the late Dr. Muhlenberg, or who found it in one of the books purchased from the reverend doctor's library. From this specimen, aided in the colour of the flowers, by a sketch sent on the blank page of the letter, by Dr. Short, I have made a drawing. I have already said, I do not assert that this plant yields the Shawnee sallad, or Indian sallad so called; but as it certainly is *an Indian sallad*, and inhabits the districts of country in which the Shawnee sallad is said to grow, it is by no means unlikely that it may be the plant intended by those appellations; and from what has been said concerning it, is undoubtedly worthy of cultivation. The roots of a species of the same genus, Hydrophyllum Canadensis, we learn, were eaten by the Indians in times of scarcity.

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Impressed with these views, I had determined, after embracing the whole of the medicinal plants of these states, to continue the work by delineating all the dietetic native vegetables of our country, and giving of each a correct coloured plate. Whether this part of my design will ever be accomplished, it is difficult to say. There are many discouraging circumstances connected with investigations of this nature, which I may not feel willing to combat or oppose. Among them, is the notorious discouraging influence, at least in this city, relative to botanical pursuits, proceeding too from sources where accidental and professional elevation gives a kind of adventitious importance to opinions, which would otherwise be wholly inefficient in their operation, if not beneath notice or refutation. As regards my own efforts, I am free to confess, that my interests are too deeply connected with such opposition to the pursuits of the professorship I have the honour to hold, to be very solicitous to run counter to, or struggle against, such appalling circumstances. And at least necessity, if not the will, would urge a relinquishment of pursuits, which are industriously taught to be incompatible with the severe, and more useful occupations of medicine, or with the attainment of the more conspicuous eminence to which the practice of physic and surgery lead.

It may now be proper to inform the public of the state of forwardness of this work. The whole number of plates necessary to complete it, are engraved; and were it not for the tediousness of the colour-

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ing,* the second volume might be presented complete, in a month from this time. By the first of the ensuing March, however, the eighth and last number will be published. And though all the important medicinal plants of our country, cannot be comprehended within the limits to which it was thought prudent, on the subscribers' account, to affix to the present undertaking, still, it is hoped, a sufficient number have been figured and described, to render the work useful. If the public desire a continuance of it, their encouragement may effect it. To them already the publishers are indebted for a very extensive patronage, and the author for a very flattering reception of his labours. The former were richly entitled to it by their enterprise, in undertaking so costly a publication, and their great

* It may be proper to mention in this place, that when this work was commenced, the author believed, being under the impression that the subscription would be very limited, that he would be enabled to execute all the colouring with his own hand. The large subscription which was immediately filled up, soon convinced him, that this was utterly impracticable; and he consequently was obliged to have recourse to the assistance of others. And even with the assistance, sometimes of six persons, he could not supply the coloured copies as rapidly as the publishers orders called for. He has been fortunate in meeting in his own family, with some persons, whose colouring is faithful—but in many instances he has met with repeated disappointment and mortification, in those who wanted this faithfulness—and in despite of all exertions to prevent it, some colouring has passed through his hands, which, though not very faulty, was far from being as well executed as could be desired. With a view to complete the work as soon as possible, a few plates have been done by Mr. Boyd, and Mr. Warnicke; the largest number, however, have been executed by Messrs. Tanner, Vallance, Kearny, and Co. The plates are highly creditable to the talents of all these excellent artists.

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liberality in conducting it; and the author can say with sincerity, that he has spared no effort in endeavouring to render his work useful, and worthy of the distinguished countenance with which it has been honoured.

Philadelphia, December 3d, 1818.

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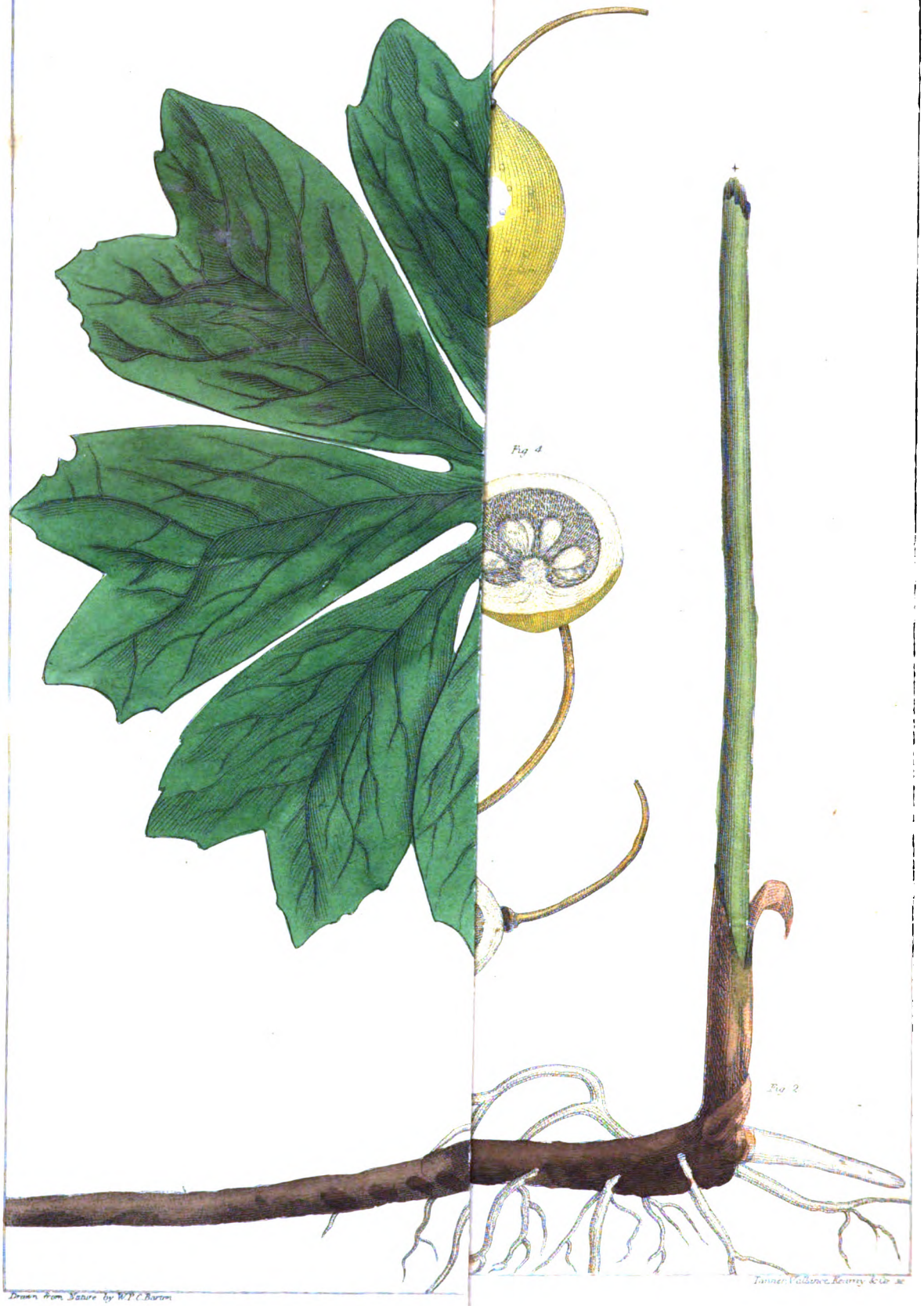
Table 25.



Drawn from Nature by W.P.C. Barton

Tanner Vallance Kearny & Co sc

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PODOPHYLLUM PELTATUM.

MAY-APPLE.

Mandrake. Wild Lemon. Ipecacuanha. Duck's-foot, (in England.)

Germ. Schildblättriger Entenfuss. (Willd.) Entenfuss; Fluss blatt.

Dutch. Eendenpoot.

PODOPHYLLUM peltatum. L. Sp. Pl. 723. a. Murr. 489. Hort. Kew. ii. 222. Boerh. ii. 72. Catesb. Car. 1. t. 24. Schoepf. 86. Bart. Collections, 31. 37. 40. ed. 3d. 31. 39. Coxe's Disp. ed. 3d. p. 499. Thatcher's Disp. ed. 3d. p. 318. Dale 421. col. 1. par. 1. Stokes's Bot. Mat. Med. iii. p. 179. Bigelow, Florula Bost. p. 132. Pursh. Fl. Am. ii. 366. Juss. 235. Mich. Fl. Am. i. 309. Hort. Cliff. 202. Hort. Ups. 137. Gron. Virg. 5. Roy. Lugdb. 480. Trew. ehret. t. 29. Mill. Dict. Houttuyn. Lin. Pfl. Syst. 7. p. 187. Willd. Sp. Pl. tom. ii. par. iii. p. 1141. Dyckman's edition of the Edinburg Dispen. p. 347. Barton's Cullen, vol. i. p. 91. vol. ii. p. 375. Nutt. Gen. Am. Pl. vol. ii. p. 10. Bart. Prod. Fl. Ph. 57. Bart. Compendium Floræ Philadelphicæ, vol. ii. p. 9. Mentz. Pugill. t. 11. Ait. Hort. Kew. vol. iii. 287. Lamarck, Illustr. t. 449. Muhl. Cat. 53. Pharm. Med. Soc. Mass. 26.

PODOPHYLLUM.

Gen. Pl. ed. Schreb. n. 879.

Cor. 9-petala, (6-10 petala. B.) *Cal.* 3-phyllus. *Bacca* 1-locularis, coronata stigmate.

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Calix 3-leaved. *Petals* 9. *Stigma* crenate, sessile. *Capsule* superior, 1-celled, many-seeded, becoming an ovate berry. *Receptacle* unilateral, large and pulpy.—*Nutt.*

Nat. Syst. Juss. *Ranunculaceæ.* Classis XIII. Ordo I.

PODOPHYLLUM, L.* *Anapodophyllum*, T.* Calix 3-phyllus. Petala 9. Stylus 0; stigma capitatum. *Caulis 2-phyllus foliis palmatis, in dichotomiâ 1-florus flore albo.*

Juss. Gen. Plant. ed. 1789. p. 235.

Nat. Ord. Lin. *Rhœadeæ.*

Classis *Polyandria.* Ordo *Monogynia.* Lin. Syst.

Gen. Ch. *Cal.* Perianth inferior, of three large, coloured, ovate, concave, ascending leaves, soon falling. *Cor.* Petals nine, orbicular, concave, plaited at the margin. *Stam.* Filaments numerous, very short; anthers oblong, large, erect. *Pist.* Germen superior, roundish; style none; stigma obtuse, furrowed. *Peric.* Berry globose, crowned with the permanent stigma, of one cell. *Seeds* numerous, roundish. *Receptacle* central, unconnected.

Ess. Ch. Corolla of nine petals. Calix of three leaves, deciduous. Berry of one cell, crowned with the stigma. Ency.

PODOPHYLLUM peltatum; stem one-flowered; leaves peltate, palmate, lobate; lobes cuneate, incised. Barton's Compendium Floræ Philadelphicæ, vol. ii. p. 9.

SYNONYMA.

ANAPODOPHYLLUM Canadense. Catesb.

ACONITIFOLIA humilis, flore albo unico campanulato fructu cynosbati. Mentz.

PHARM.

PODOPHYLLI peltati, *Radix;* interdum *fructus.*

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THE generic name *Podophyllum*, is derived from πους, a foot, and φυλλον, a leaf, from a fancied resemblance of the leaf to the web-foot of aquatic birds. It was called originally by Tournefort *Anapodophyllon*, from *anas*, the Latin name for a duck; but Linnæus's more correct notions of derivation, caused him to modify this exceptionable word in the manner it is now universally received. The species which is the subject of this article, is a hardy perennial herbaceous plant, and is perhaps, one of the most important medicinal vegetables indigenous to our country. The root is creeping, very long, often from three to six feet in length, of a burnt-umber or bistre colour externally, and yellowish-white within. It is smooth and round, but interrupted by joints or nodes, from which proceed numerous large fibres of a colour considerably lighter than the main root. The stem is upright, simple, round, smooth, yellowish-green, about a foot or fourteen inches high, supporting two large leaves, and a single flower in the fork, formed by the junction of the petioles. The leaves when they first appear are often marked with brown discolorations; these occasionally continue on them when mature. They are peltate, the petioles inclining mostly towards the edge of the fissure in the base. They are palmately divided for the most part into six large lobes, attenuated towards the bottom, and irregularly incised at the top, with sometimes sharp and often obtuse points. They are strongly veined, are of a fine yellow-green above, pale underneath, inclining in the mature leaves to a grey or bluish-green, and are reputed to possess a deleterious quality. The flower is drooping, mostly of the size represented in the plate,

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consisting of three deciduous calix leaves (Fig. 8.) and from six to nine white petals, delicately reticulated with veins, and forming a concave flower. The pistil is somewhat urceolate, of a yellowish colour and crowned with a crenate stigma, much darker. The stamens are from thirteen to twenty, and of a yellow colour. The fruit varies much in size, according to the different situations in which the plant may have grown. Its usual size is that represented in the figure, or of a common plumb, but I have very frequently seen it twice as large, and it is often smaller. It is, when mature, of a lemon-yellow colour, slightly maculated with round brownish dots, and is crowned with the persistent stigma. It consists internally of a delicate pulp, in which about a dozen seeds are immersed, attached by umbilicate fibres to the receptacle, which is situated more to one side than the other. This fruit is extremely delicious to most persons, and to many quite apperient; it may be eaten in considerable quantities without any unpleasant effect, and being subacid and grateful, may be considered healthful. Schoepf says, the pigeons of Carolina are fattened by eating it. The seeds are about twelve in number, of the size and shape represented in the drawing, and of a light yellowish colour.

This plant is propagated so luxuriantly by the creeping of its roots, that but a small proportion of the flowers produce fruit; perhaps not more than one in forty or fifty; so that it is not uncommon to find whole patches consisting of two or three hundred

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plants, with scarcely more than a couple of dozen fruiting specimens.

The May-apple is exclusively a native of North America; and is found from the northern to the southern boundaries of the United States, in great profusion, generally inhabiting moist, rich, and shady woods, though not unfrequently met with in open or exposed situations, as well as often by the edges of rivulets. It appears, however, to delight in moist soil, being always most luxuriant in humid places. When it grows in low and very wet or marshy grounds, the roots become larger than usual, and quite succulent, so that in exsiccation they lose more than half their diameter.

Why this plant has received the name of May-apple, it is difficult to conjecture, since it only commences flowering, at least in the middle and northern states, in the latter part of the month of May, and is not in full bloom until the first week in June. Its fruit is not mature till the latter part of September, at which time the leaves have become faded to a yellow colour, or have entirely fallen off. Then is the proper period for collecting the roots for medicinal uses; they should be dried and pulverized for use. The Indians dry them in the shade. (For Chemical Analysis, see Appendix.)

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MEDICINAL PROPERTIES.

The root of the May-apple, exclusively, is used in medicine. There is no indigenous plant whose medicinal virtues are better ascertained at present. Its proper place in the Materia Medica, is among cathartics; and it may be ranked among the most safe and active of this class of medicines. Schoepf briefly remarks that the root is emetic, without specifying the dose which produces that effect; and Puihn speaks of it as a powerful emetic: "Podophylli peltati radix valde emetica est."* Like most active purgatives, this medicine will occasionally act upon the stomach; and I have on two occasions found large doses, to produce full vomiting. But this is certainly not the usual, or conspicuous effect of the powder; on the contrary, it almost always acts as an active purgative. In an extensive use of this article for two years past, I have, with the exception of the two instances just mentioned, uniformly found it to affect the bowels; and I have repeatedly employed it alone; though the better mode of administering it is in conjunction with the supertartrate of potash, calomel or rhubarb. The root has "often been found to operate as an anthelmintic, and it is used as such by the Cherokee

* Materia Venenaria Regni vegetabilis.

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and other southern Indians."* Of this my experience affords neither corroboration nor refutation; but in all probability the plant is destitute of any specific anthelmintic virtue; and most likely expels worms as calomel and many active purgatives do. The late Dr. Barton tells us that he had heard much of the virtue of an extract of the root of May-apple, but had never himself used it. It is reputed to have been found highly useful as a cathartic in colica pictonum.† He seemed to think that, as a cathartic, the powder possessed some advantages over rhubarb and jalap; he does not however mention in what respect he deemed it superior or preferable. My impression, from an impartial administration of the powder, in repeated trials, is, that it is equal to the common jalap of the shops, in doses of the proportion of a scruple of the former, to fifteen or eighteen grains of the latter; and in this it seems indeed to be preferable to the jalap, that it is less nauseous to irritable stomachs. Dr. Barton remarks, "that Podophyllum has been thought by some practitioners, to be especially adapted, as a purge, to cases of intermittents, remittents and dropsy;" and concludes by observing, that he "believes the medicine possesses some narcotic quality."‡

* Barton's Collections.

† Barton's edition of Cullen's Materia Medica, vol. 2. p. 375.

‡ Ibid.

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TABLE XXV.

Fig. 1. Represents the Podophyllum peltatum in flower, the stem broken from Fig. 2. at the mark.+

2. The lower portion of the stem and root of the same.

3. The mature fruit of the commonest size.

4. A cross section of the same, shewing the pulp and the attachment of the seeds to the receptacle.

5. A longitudinal section of another fruit, which shews the variation in the shape of the apple, and gives a different view of the seeds.

6. A back view of a seed.

7. A front view of the same.

8. A view of the unexpanded flower, exhibiting the calix before it has fallen.

9. A stamen.

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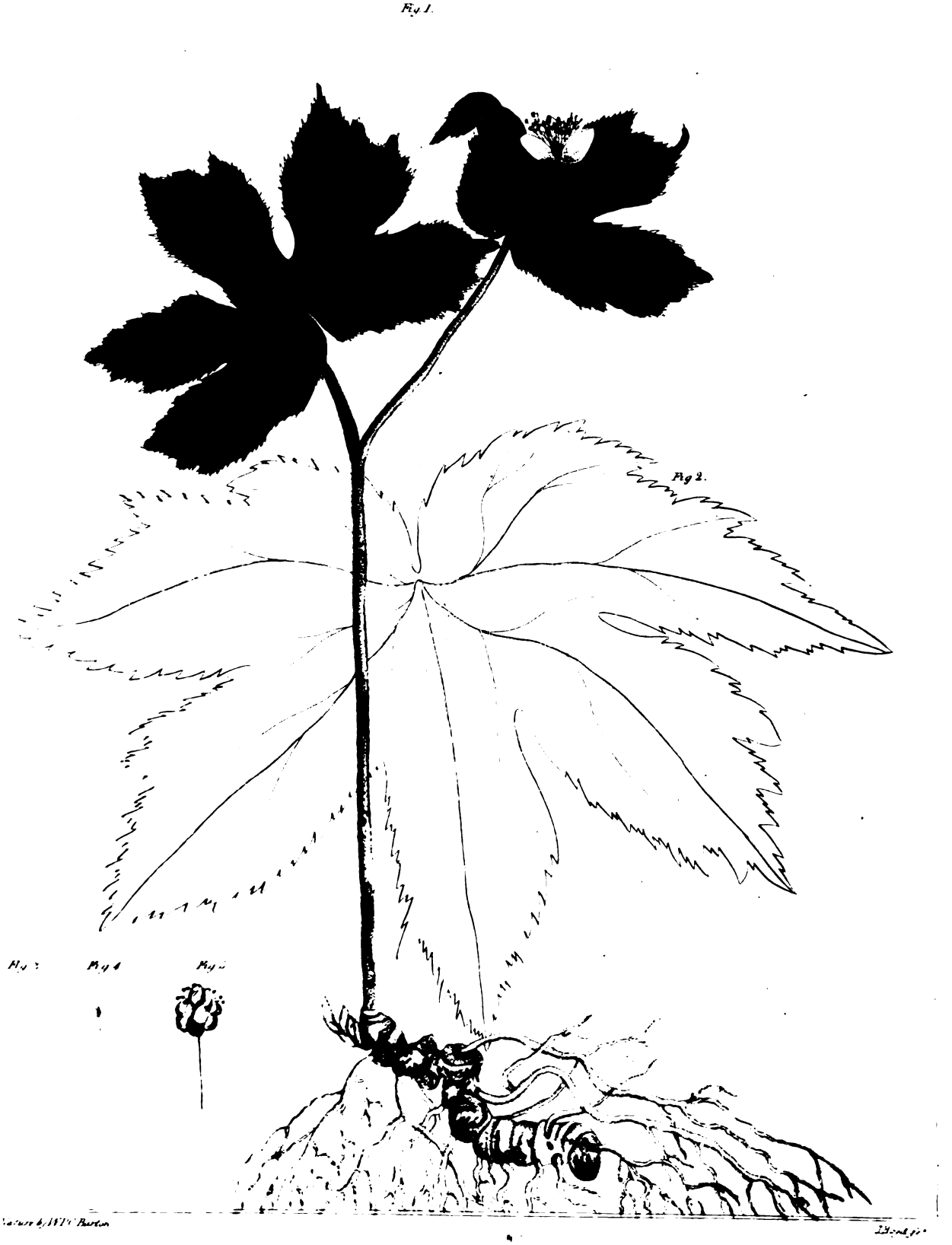

HYDRASTIS CANADENSIS.

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HYDRASTIS CANADENSIS.

YELLOW-ROOT.

Germ. Canadische Hydrastis. (Willd.)

French. Hydraste de Canada.

HYDRASTIS Canadensis. L. Sp. Pl. 784. Mant. 408. Hort. Kew. ii. 278. Mill. Ph. ic. 190. t. 285. Stokes's Bot. Mat. Med. iii. 278. Houttuyn. Lin. Pfl. Syst. vii. p. 379. Mich. Fl. Am. Boreal. i. 317. Pursh. Fl. Am. ii. 389. Muhl. Cat. 57. Willd. Sp. Pl. ii. p. 1340. Coxe's Disp. ed. 3d. 374. Dyckman's Ed. Disp. 416. Barton's Collections, ed. 3d. par. i. p. 9. par. ii. p. 13. Bart. Comp. Fl. Ph. ii. p. 22. Bart. Prod. Fl. Ph. p. 61. Juss. 232. Lamarck, Dict. v. 3. 151. Illustr. t. 500. Lin. Gen. Pl. 283. Schreb. 379. Mart. Mill. Dict. v. 2. Bart. Elem. Bot. par. 3. p. 70.

HYDRASTIS.

Gen. Pl. ed. Schreb. n. 958.

HYDRASTIS. *Cal.* 0. *Petala* 3. *Nectaria* 0. *Bacca* composita acinis monospermis.

Nat. Syst. Juss. *Ranunculaceæ.* Classis XIII. Ordo I.

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HYDRASTIS, L. * Calix 0. Petala 3. Baccæ numerosæ minimæ. Caulis alternè 2-phyllus, foliis palmatis; flos solitarius terminalis; fructus et habitus Rubi herbacei. Affinis Podophyllo, sed polygyna. An semini perispermum corneum?

Juss. Gen. Plant. ed. 1789. p. 232.

Nat. Ord. Lin. *Multisiliquæ?*

Classis *Polyandria.* Ordo *Polygynia.* Lin. Syst.

Gen. Ch. *Cal.* Perianth none. *Cor.* Petals three, ovate, regular. *Stam.* Filaments numerous, linear, compressed, a little shorter than the corolla; anthers compressed, obtuse. *Pist.* Germens numerous, ovate, forming themselves into an ovate head; styles very short; stigmas broadish, compressed. *Peric.* Berry composed of oblong grains. *Seeds* solitary, oblong.

Ess. Ch. Calix none. Petals three. Nectary none. Berry composed of single-seeded grains. Ency.

HYDRASTIS Canadensis; caule supernè oppositè diphyllo; foliis petiolatis basi emarginatis, palmatis, serratis, incisis; pedunculo terminali solitario unifloro.—Willd. and Pursh.

Stem above oppositely two-leaved; leaves petiolate, emarginate at the base, palmate, serrate, incised; peduncle terminal, solitary, one-flowered. B.

SYNONYMA.

WARNERA Canadensis. Mill.

HYDROPHYLLUM verum Canadensium. Sp. Pl. 1. p. 146.

PHARM.

HYDRASTIS Canadensis, *Radix.*

AMONG the numerous distinguished contributors to the herbarium of Linnæus, was the industrious Mr. John Ellis; and to him we are

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indebted for the generic name Hydrastis, and the first description of the only species of the genus yet discovered.* Linnæus seems, through some misapprehension in the history or discovery of this plant, or some confusion relative to the communication of it by Mr. Ellis, to have supposed that his friend designed to commemorate "a young lady of noble birth;" other botanists have thought it probable,† that the name had a reference to the natural situation of the plant, from ὑδωρ, water, or ὑδρεια, an *imbibing of water*. It is extremely doubtful whether this was really the derivation of the word; for the plant, as far as any thing of its natural history is known to me, is neither remarkable for imbibing, nor for growing in the vicinity of water; neither does it appear to delight in a very moist soil, for in the vicinity of Lancaster, where I have met with the greatest abundance of it, and where it grows in profusion, it is confined altogether to shady woods of rich soil. It was first cultivated in England by P. Miller, in 1759, and is erroneously there called, *a bog-plant.*

The root consists of a tortuous or gibbous caudex, from which proceed a great number of tolerably large fibrous portions; all of a bright yellow colour, but the fibres rather more brilliant than the

* I am aware that Walter has described a species by the name of H. Carolinensis, but it is probably nothing more than a local variety of this one. Dr. Muhlenberg has introduced it in his catalogue with the doubtful mark.

† Edit. Article Hydrastis. Rees's Ency.

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main root. It shrinks considerably in drying, often losing two-thirds of its bulk. The stem is upright, from eight to twelve inches high, round and finely pubescent or hairy, especially in the young state of the plant. It is terminated by two leaves of unequal size, beyond the smaller of which the peduncle projects to the length of three quarters of an inch, and is terminated by a single three-petalled, white or very pale rose-coloured flower.

The leaves are petiolated, emarginate at the base, palmate, unequally serrated, three, four, or five lobed, the lobes having a smaller lobe on each side. The leaves are at first small during the florescence, but afterwards become much larger, as represented in the outline (Fig. 2.) When the plant is quite advanced, they are often even larger than that figure. The fruit is said to be about the size of a raspberry, and of a bright red colour. It is a compound berry, consisting of a number of muricated acini, the points occasioned by the persistent styles. This plant is in flower in the beginning of May, but as the petals are fugacious, it is seldom seen in full florescence. I have not myself seen it except just after the petals had fallen; in consequence of which I have been obliged to make the drawing of the petals, from a specimen in the Muhlenbergian Herbarium. Hydrastis is not a very common plant, except westward of the Allegehany mountains, where it is said to grow in profusion. It is however sufficiently abundant in the woods near Lancaster, in Pennsylvania. In the neighbourhood of this city, it is very rare. I

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have two or three times found it on the Wissahickon creek, near Germantown. The young plants which appear in midsummer have but a single leaf. (For the Chemical Analysis, see Appendix.)

MEDICINAL PROPERTIES.

The medicinal virtues of Hydrastis, reside in the root. When dried, it has a strong and somewhat narcotic smell, and it is exceedingly bitter. Hence spirituous infusions of it are used, and recommended by country practitioners, for their tonic effect. It is a common practice in some parts of our country, particularly in Kentucky, in the vicinity of the falls of Ohio, to use a cold, strained infusion, in inflammation of the eyes. This fact was known to the late Professor Barton who has mentioned it in his "Collections;" and on his authority it has been introduced into our Dispensatories. This plant has been described to me by a gentleman of my class from Kentucky, as being much used in the manner just mentioned. The commendations which have been bestowed on yellow-root, have, unfortunately, not been confined, as perhaps they should have been, to the bitter-tonic virtues which it indubitably possesses; but a mere supposition, rather inadvertently thrown out by the late Professor Barton, that "the Cherokee Indians employ a plant in the cure of cancer, which is thought to be Hydrastis," has caused some persons

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to attach to its other medicinal qualities, the questionable power of curing or alleviating cancer; and it is much to be regretted that Dr. Dyckman, in his valuable edition of the Edinburg Dispensatory, has mentioned cancer as one of the diseases for which Hydrastis is a remedy. It is, I believe, not to be doubted, that there is scarcely a plant distinguished for any medical powers that is not, in some part or other of our country, commended by the vulgar, as a cancer-remedy. The almost irremediate nature of that disease by any other means than the surgeon's knife, is the obvious cause of such perpetual recurrence to a multitude of remedies, which have, in all probability, no other claim to the name of cancer-remedies, than that which exists in the imaginations of the credulous persons who employ them, and whose temerity in the indiscriminate use of active plants in the treatment of this disease, is unrestrained by that fear, which knowledge inspires, and uncontrolled by a sense of the danger of using acrid or irritating applications. I have made some trials with the pulverised root and spirituous tincture of Hydrastis; and these sufficiently justify me in recommending it to the notice of physicians as a strong tonic bitter. Yet I confess myself unwilling to believe that the plant is possessed of any properties sufficiently active, or of such a nature, as to lead to any reasonable expectation of being serviceable in cancers; though it is probable enough that it is one of the numerous vegetable bases of the many quack medicines for this disorder.

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Œconomical use.

The root of Hydrastis affords a juice of a brilliant yellow colour, which has been employed for the purpose of dyeing.

TABLE XXVI.

Fig. 1. Represents a flowering specimen of Hydrastis Canadensis, about the usual size during florescence.

2. The size of the leaves when the plant is further advanced and in fruit.

3. A petal.

4. A stamen, a very little magnified.

5. Represents the immature fruit about half advanced towards perfection, and about one-third of the size of the full grown berry. I have figured it in this imperfect state, never having seen the mature fruit.

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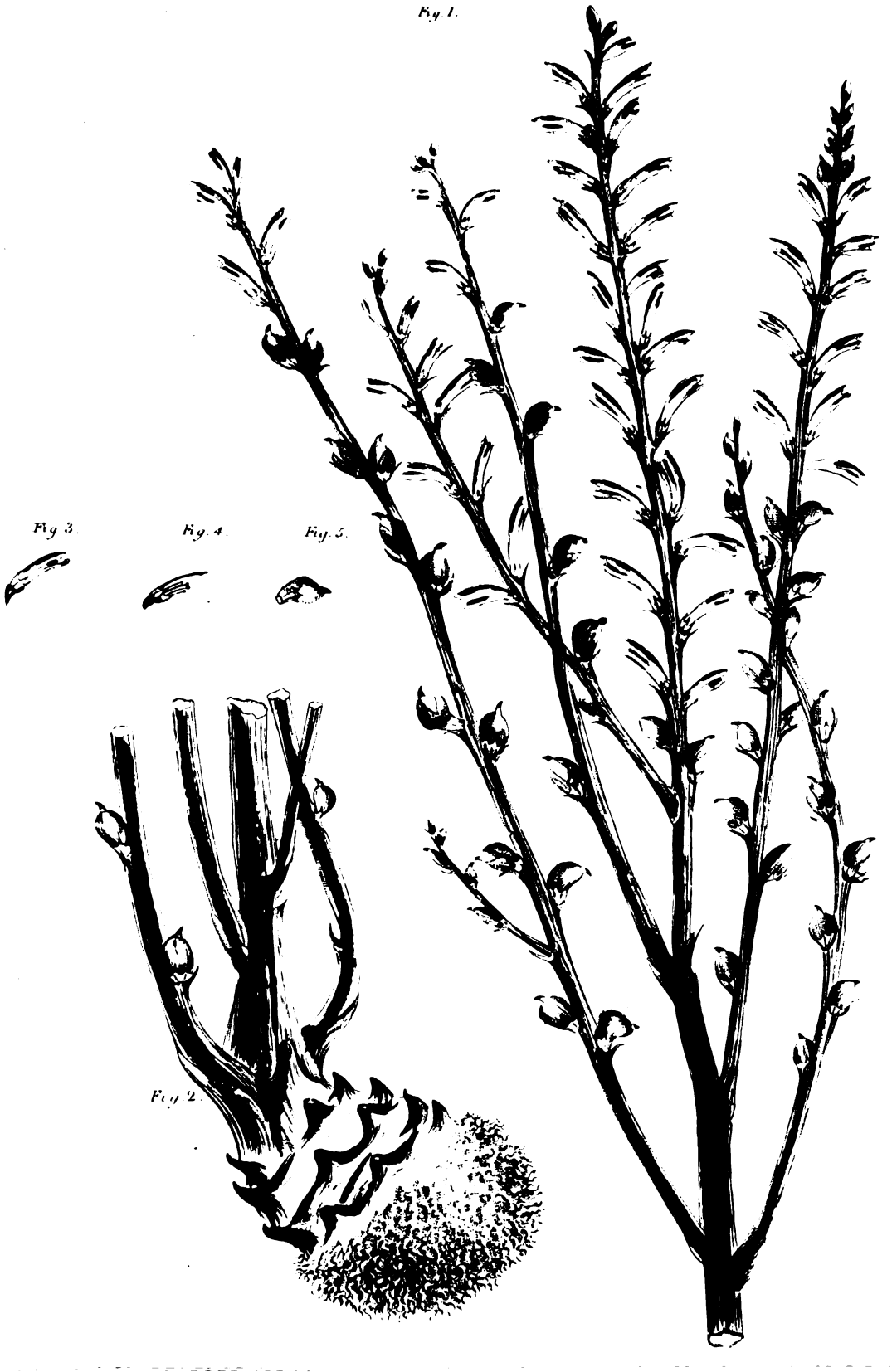
Table 27.



Drawn from Nature by W.P.C. Barton

J. Boyd Sc.

OROBANCHE VIRGINIANA.

(Cancer-root Beech-drops.)

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OROBANCHE VIRGINIANA.

CANCER-ROOT. BEECH DROPS.

Virginian Broom-rape.

Germ. Virginische Sommerwurz. (Willd.)

Orobanche Virginiana. L. Sp. Pl. 882. Walt. 167. Gron. Virg. 96. Mor. Hist. ox. s. 12. t. 16. row. 1. f. 9. Stokes's Mat. Med. iii. p. 408. Schoepf. 101. Coxe's Disp. ed. 3d. p. 465. Dyckman's Ed. Disp. 418. Barton's Collections, ed. 3d. par. 2. p. 6. Mich. Fl. Boreali-Am. ii. p. 26. Pursh. Fl. Am. Sep. ii. p. 431. Nutt. Gen. Am. Pl. ii. p. 60. Bart. Prod. Fl. Ph. 66. Bart. Comp. Fl. Ph. ii. p. 50. Muhl. Cat. 61. Walt. Carol. 167. Raj. Supp. 595. Houttuyn. Lin. Pfl. Syst. 8. p. 152. Willd. Sp. Pl. tom. iii. par. 1. p. 350. Lin. Gen. 321. Schreb. 421.

OROBANCHE.

Gen. Pl. ed. Schreb. n. 1045.

Cal. 2-4. s. 5-fidus. *Cor.* ringens. *Caps.* 1-locularis, 2-valvis, polysperma. *Glandula* sub basi germinis.

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Nat. Syst. Juss. *Pediculares.* Classis VIII. Ordo II.

Orobanche, T. L. * *Orobanche.* Calix 3-bracteatus, nunc tubulosus 5-fidus inæqualis, nunc subnullus bracteis 2 interioribus latioribus 2-fidis calicem supplentibus. Corolla tubulosa ventricosa irregularis 2-labiata, suprà concava emarginata, infrà reflexa 3-fida inæqualis. Stamina 4 didynama, sub labio superiore. Germen basi glandulosum; stylus 1; stigma 2-lobum. Capsula acuminata 1-locularis 2-valvis polysperma, singulâ valvâ medio 2-placentari et seminiferâ, seminibus minutissimis. Herbæ subcarnosæ rufescentes, parasiticæ plantarum radicibus innascentes; radix tuberosa, squamis imbricata; caulis alternè squamulosus, sæpè simplex; flores bracteati, spicati terminales. Species quædam scapo nudo 1-floro, flore spathaceo affines Lathræis 1-floris. Thunbergius *Phelypeæ* nomine describit herbam Orobanche similem, unicaulem, aphyllam, squamulòsam, dioïcam apice florentem, calice 2-partito bracteiformi, corollâ 6-partitâ connivente ciliatâ pilosâ, filamento 1-hypogyno, antherâ clavatâ, germine supero, stylo 1, stigmate capitato, capsula columnari 7-valvi 7-loculari polyspermâ, columnâ intrà fructum centrali: an planta verè corollata, aut verè 1-andra? Juss. Gen. Plant. ed. 1789. p. 101-2.

Gen. Ch. Perianth inferior, of two leaves, mostly divided, lateral, sometimes combined at their base, erect, coloured, permanent. *Cor.* of one petal, ringent, withering. Tube bending, ample, inflated. Limb spreading; its upper lip concave, dilated, notched; lower reflexed, three cleft, uneven at the margin, notched; its segments various in size and proportion. Nectary a gland, in front, at the base of the germen. *Stam.* Filaments four, awl-shaped, concealed under the upper lip, two of them longest; anthers erect, approximated, shorter than the corolla, tumid, two-lobed, and acutely awned. *Pist.* Germen superior, oblong; style simple, the length and position of the stamens; stigma drooping, thick, of two obtuse lobes. *Peric.* Capsule ovate-oblong, pointed, of one cell and two valves. *Seeds* numerous, minute. *Receptacles* four, linear, lateral, attached to the valves.

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Ess. Ch. Calix of two natural leaves. Corolla ringent. Capsule of one cell and two valves. Seeds numerous. A gland under the germen in front. Ency. Nat. Ord. Lin. *Personatæ.*

Classis *Didynamia.* Ordo *Angiospermia.* Lin. Syst.

Orobanche Virginiana; caule ramoso, floribus alternis distantibus, corollis deciduis 4-dentatis. Willd. and Pursh.

Stem branched, flowers alternate, distant; corollas deciduous, 4-toothed.

SYNONYMA.

Orobanche caule ramoso, floribus distantibus. Gron.

O. minor Virginiana lignosior, &c. Morris.

Epifagus Americanus. Nutt.

Epifagus Virginianus. Bart. Comp. Fl. Ph.

PHARM.

Orobanch. Virg. Radix et Herba.

The Cancer-root is a very singular, handsome, and interesting parasitic plant. It belongs to a genus which is the ὀροβαγχη of the Greeks; so named from ὄροβος, a vetch, and ἄγχω, to *strangle*, or *suffocate*, because the species of the genus designated by this name were supposed to starve, or render barren, the different plants on which they grow. The name of *Broom-rape*, by which all the species of the genus are designated in England, was given in conse-

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quence of the Orobanche having been originally discovered in that country, to be parasitic on the broom.

The present species is singular in its habit and structure, and interesting, because of the agency there is good reason to suppose it had in the formation of a celebrated cancer-powder. The whole plant is somewhat fleshy; it is herbaceous and wholly without verdure, or even any approximation to that common hue of the vegetable creation. It is frequently altogether of a sickly yellow colour, but most commonly is of a pale pink, with longitudinal stripes of dark purple, white and yellow. These stripes are on the ridges of the stems and branches, all which are finely furrowed. The root is tuberous, yellow, carnose, covered with short convoluted and matted fibres on its lower end, and interspersed with squamose projections towards its junction with the stalk. The stem is glabrous, erect, about twelve or fifteen inches high, much branched from the base, and garnished with scattered, short ovate scales instead of leaves, of which it is entirely destitute. The flowers are numerous, remote, alternate, and situated just above the cauline scales. The calix is a short membranaceous cup, with five vertical acute ribs projecting above, and joined together by their crenate margin. The acute points of those projections are deep purple, inclining to crow-black. The corolla of the fertile or fruiting flowers, is small, being in reality, little else than a four-toothed scale, crowning the large and rapidly enlarging germ, after the manner of the calyptra of

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mosses. This corolla, which is represented by the beak-like process in (Fig. 5.) is extremely deciduous, owing to the increase in the size of the germs, which is very rapid, as well as to their oblique form. The later and infertile flowers, which are numerous, and situated towards the tops or extremities of the branches, are about half an inch long, arcuate, tubular, compressed, and bilabiate: the upper lip is somewhat notched, the lower three-toothed; their calices are like those of the primary or fertile flowers, but their corollas are of a cream-white, delicately striped with rose-red, and have, on close inspection, a very beautiful appearance. The pale yellow specimens are generally destitute of these long tubular flowers. The stamens are four in number, rarely exserted, but have no attachment to the corolla; they are furnished with smooth filaments, crowned with small globose pubescent anthers. The style is simple and smooth. The capsule which opens only on one side, contains an immense number of very minute, ovate, yellowish-white seeds, resembling coarse meal.

It has been already said, that this is a parasitic plant, and it is chiefly, if not always found growing on the roots of the Beech, (*Fagus sylvatica*, and *F. feruginea.*) Hence the common name *Beech-drops*, from the vulgar notion, that as the plant is found under the shade of those trees, it is produced by some kind of seed falling from them. The vulgar name *cancer-root*, may have had its origin in the cancerous like structure, if I may so speak, of the root;

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or perhaps from the use made of the plant in the treatment of cancers.

Mr. Nuttall says this plant is "equally indigenous to every part of North America." In the neighbourhood of this city, it is very abundant, particularly in the woods above the falls of the Schuylkill, on the west side; where it covers the ground for rods together. It is in full flower in those situations, about the tenth of September, at which time it should be gathered for medical use. (For Chemical Analysis, see Appendix.)

MEDICINAL PROPERTIES.

The cancer-root is now introduced into all our dispensatories, and has obtained, whether deservedly or not, I am unable from any experience on the subject to say, not a little reputation as a remedy for cancer. The chief claim it has to any consideration as an efficacious application to cancerous affections, is derived from the circumstance of its having been collected by Dr. Hugh Martin, in the neighbourhood of Pittsburg, Pennsylvania, for the purpose of making his renowned cancer-powder,* a preparation supposed to consist

* See Barton's Collections, ed. 3d. par. 2. p. 8.

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of the white oxyd of arsenic* and this vegetable base. On this subject the late Professor Barton has made these observations: "The Oro-

* Since there is so much reason to believe that the subject of this article was really the vegetable base of this celebrated powder, it may be useful to quote Professor Rush's paper on the subject, at length. I do this the more willingly, because the transactions of the Philosophical Society in which it is published, are not very accessible to most persons.

An account of the late Dr. Hugh Martin's Cancer Powder, with brief observations on cancers. By Benjamin Rush, M. D., &c. &c. "A few years ago a certain Dr. Hugh Martin, a surgeon of one of the Pennsylvania regiments stationed at Fort Pitt, during the latter part of the late war, came to this city, and advertised to cure cancers with a medicine which he said he had discovered in the woods, in the neighbourhood of the garrison. As Dr. Martin had once been a pupil of mine, I took the liberty of waiting upon him, and asked him some questions respecting his discovery. His answers were calculated to make me believe, that his medicine was of a vegetable nature, and that it was originally an Indian remedy. He shewed me some of the medicine, which appeared to be the powder of a well-dried root of some kind. Anxious to see the success of this medicine in cancerous sores, I prevailed upon the doctor to admit me to see him apply it in two or three cases. I observed in some instances, he applied a powder to the parts affected, and in others only touched them with a feather dipped in a liquid which had a white sediment, and which he made me believe was the vegetable root diffused in water. It gave me great pleasure to witness the efficacy of the doctor's applications. In several cancerous ulcers, the cures he performed were complete. Where the cancers were much connected with the lymphatic system, or accompanied with a scrophulous habit of body, his medicine always failed, and in some instances did evident mischief.

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banche has been supposed by many persons, to have formed a part of the celebrated cancer-powder of Dr. Hugh Martin, whose success

"Anxious to discover a medicine that promised relief in even a few cases of cancers, and supposing that all the caustic vegetables were nearly alike, I applied the phytolacca or poke root, the stramonium, the arum, and one or two others, to foul ulcers, in hopes of seeing the same effects from them which I had seen from Dr. Martin's powder; but in these I was disappointed. They gave some pain, but performed no cures. At length I was furnished by a gentleman from Fort Pitt with a powder which I had no doubt, from a variety of circumstances, was of the same kind as that used by Dr. Martin. I applied it to a fungous ulcer, but without producing the degrees of pain, inflammation, or discharge, which I had been accustomed to see from the application of Dr. Martin's powder. After this, I should have suspected that the powder was not a *simple* root, had not the doctor continued upon all occasions to assure me that it was wholly a vegetable preparation.

"In the beginning of the year 1784 the doctor died, and it was generally believed that his medicine had died with him. A few weeks after his death, I procured from Mr. Thomas Leiper, one of his administrators, a few ounces of the doctor's powder, partly with a view of applying it to a cancerous sore which then offered, and partly with a view of examining it more minutely than I had been able to do during the doctor's life. Upon throwing the powder, which was of a brown colour, upon a piece of white paper, I perceived distinctly a number of white particles scattered through it. I suspected at first that they were corrosive sublimate: but the usual tests of that metallic salt soon convinced me that I was mistaken. Recollecting that arsenic was the basis of most of the celebrated cancer-powders that have been used in the world, I had recourse to the tests for detecting it. Upon sprinkling a small quantity of the powder upon some coals of fire, it emitted the garlic smell so perceptibly as to be known by

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in the management of many cases of this dreadful disease, has been acknowledged by the regular practitioners of Philadelphia, &c.

several persons whom I called into the room where I made the experiment, and who knew nothing of the object of my enquiries. After this with some difficulty I picked out about three or four grains of the white powder, and bound them between two pieces of copper, which I threw into the fire. After the copper pieces became red hot, I took them out of the fire, and when they had cooled, discovered an evident whiteness imparted to both of them. One of the pieces afterwards looked like dull silver. These two tests have generally been thought sufficient to distinguish the presence of arsenic in any bodies; but I made use of a third, which has lately been communicated to the world by Mr. Bergman, and which is supposed to be in *all cases* infallible.

"I infused a small quantity of the powder in a solution of a vegetable alkali in water for a few hours, and then poured it upon a solution of blue vitriol in water. The colour of the vitriol was immediately changed to a beautiful green, and afterwards precipitated.

"I shall close this paper with a few remarks upon this powder, and upon the cure of cancers and foul ulcers of all kinds.

"1. The use of caustics in cancers and foul ulcers is very ancient, and universal. But I believe *arsenic* to be the most efficacious of any that has ever been used. It is the basis of Plunkett's, and probably of Guy's well known cancer-powders. The great art of applying it successfully, is to dilute and mix it in such a manner as to mitigate the violence of its action. Dr. Martin's composition was happily calculated for this purpose. It gave less pain than the common or lunar caustic. It excited a moderate inflammation, which separated the morbid from the sound parts, and promoted a plentiful afflux of humours to the sore during its application. It seldom produced an escar; hence it insinuated itself into the deepest recesses of the cancers, and frequently sepa-

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"As early as 1785, at which time I was a student of medicine, I was informed, by the people inhabiting the western parts of Penn-

rated these fibres in an unbroken state which are generally called the roots of the cancer. Upon this account, I think, in an ulcerated cancer it is to be preferred to the knife. It has no action upon the sound skin. This Dr. Hall proved by confining a small quantity of it upon his arm for many hours. In those cases where Dr. Martin used it to extract cancerous or schirrous tumours that were not ulcerated, I have reason to believe that he always broke the skin with Spanish flies.

"2. The arsenic used by the doctor was the pure white arsenic. I should suppose from the examination I made of the powder with the eye, that the proportion of arsenic to the vegetable powder, could not be more than one-fortieth part of the whole compound. I have reason to think that the doctor employed different vegetable substances at different times. The vegetable matter with which the arsenic was combined in the powder which I used in my experiments, was probably nothing more than the powder of the root and berries of the solanum lethale, or deadly nightshade. As the principal, and perhaps the only design of the vegetable addition was to blunt the activity of the arsenic, I should suppose that the same proportion of common wheat flour as the doctor used of his caustic vegetables, would answer nearly the same purpose. In those cases where the doctor applied a feather dipped in a liquid to the sore of his patient, I have no doubt but his phial contained nothing but a weak solution of arsenic in water. This is no new method of applying arsenic to foul ulcers. Dr. Way of Wilmington, has spoken in the highest terms to me of a wash for foulnesses on the skin, as well as old ulcers, prepared by boiling an ounce of white arsenic in two quarts of water to three pints, and applying it once or twice a day.

"3. I mentioned formerly that Dr. Martin was often unsuccessful in the application of his powder. This was occasioned by his using it indiscriminately in *all* cases. In

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sylvania and Virginia, that this Orobanche formed the principal part, if not the whole, of Martin's powder. It was even said, that Martin,

schirrous and cancerous tumours, the knife should always be preferred to the caustic. In cancerous ulcers attended with a scrophulous or a bad habit of body, such particularly as have their seat in the neck, in the breasts of females, and in the axillary glands, it can only protract the patient's misery. Most of the cancerous sores cured by Dr. Martin were seated on the nose, or cheeks, or upon the surface or extremities of the body. It remains yet to discover a cure for cancers that taint the fluids, or infect the whole lymphatic system. This cure I apprehend must be sought for in diet, or in the long use of some internal medicine.

"To pronounce a disease incurable, is often to render it so. The intermitting fever, if left to itself, would probably prove frequently, and perhaps more speedily fatal than cancers. And as cancerous tumours and sores are often neglected, or treated improperly by injudicious people, from an apprehension that they are incurable, (to which the frequent advice of physicians "to let them alone," has no doubt contributed) perhaps the introduction of arsenic into regular practice as a remedy for cancers, may invite to a more early application to physicians, and thereby prevent the deplorable cases that have been mentioned, which are often rendered so by delay or unskilful management.

"4. It is not in cancerous sores only that Dr. Martin's powder has been found to do service. In sores of all kinds, and from a variety of causes, where they have been attended with fungous flesh or callous edges, I have used the doctor's powder with advantage.

"I flatter myself that I shall be excused in giving this detail of a *quack* medicine, when the society reflect that it was from the inventions and temerity of quacks, that physicians have derived some of their most active and useful medicines." Trans. Amer. Phil. Soc. vol. 2. p. 212.

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who had passed some time at Fort Pitt, was known to have collected the plant for the purpose. I believe it to be a fact sufficiently established, that the basis, or perhaps rather the most active part, of Martin's powder, was the oxyd of arsenic. This has been shown by a chemical examination of the powder, and by other circumstances nearly as decisive. Thus comatose affections, such as are known to be induced by arsenic, have been induced by the powder of Martin, even when externally applied in cancerous ulcers. A case of this kind came under the notice of a physician in Philadelphia. The patient seemed to fall a victim to the application of the medicine.

"But the powder of Martin did not consist entirely of the oxyd of arsenic. This is certain. I believe it to be certain also, that he combined with the arsenic, a vegetable matter; and from what has been said, it would seem not entirely improbable, that this vegetable was the Orobanche Virginiana.

"It may be said, and it is not impossible, that Martin added the vegetable matter merely to disguise the arsenic, reposing, at the same time, *all* his confidence in the arsenic alone. I think it more probable, however, that the superior efficacy of Martin's powder, and of the powders in the hands of other empirical practitioners, has been, in part, owing to the addition of something to the arsenic. If there be *no* foundation for this suspicion, how has it happened,

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that in the management of cancers, the empirical practitioners have often succeeded so much better with their medicines than the regular physicians have done? Both use arsenic. Some of the cancer-powders, employed by empirics, in Europe, are known to have been composed, in part, of arsenic and a vegetable matter. The celebrated powder of Plumked was made up of arsenic, the root of a species of Ranunculus, or Crow-foot, and sulphur.

"Whatever may have been the vegetable which Martin used in combination with arsenic, it is certain, that the powder of the Orobanche, or Cancer-root, has been of great service (in Philadelphia, &c.) externally applied to obstinate ulcers, some of which had resisted the applications that are commonly made use of in such cases. It would be well to try the effects of this vegetable in those dreadful ulcerations, by some writers deemed cancerous, which are too frequently the consequence of the use of mercury, when it has been given in large quantity. Cases of the kind I allude to, are recorded by Dr. Donald Monro, Mr. Adams, in a valuable work, and other writers. I have had occasion to see some ulcerations of the same kind in Philadelphia. They often refuse to yield to stimulating or to mild applications.

"With the view to encourage further enquiry into the nature and properties of the Orobanche Virginiana, I may here mention, that one of the European species of this genus, the Orobanche major, or

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Greater Broom-rape, is a very powerful astringent, and is said to have been found useful, externally applied, in cases of ulcers. This I mention on the respectable authority of sir John Floyer. The activity of the European plant may even be inferred from the fact mentioned by Schreber, that cattle do not eat it."*

It would seem then, that the cancer-root is an active vegetable, and it would be naturally expected, from the foregoing account of its effects, to be considerably astringent. This is the fact, and its astringency is very perceptible to the taste in the recent, and in the dry plant. When fresh, the plant is also bitter and nauseous to the taste; exsiccation seems to lessen in some degree its sensible properties.

Dr. Barton tells us " it has been celebrated in dysentery." He does not mention the manner nor the dose in which it has been administered in that complaint; and as I have never administered it myself internally, I am not prepared to offer any opinion on the subject.

Upon the whole, the cancer-root may be justly said to have a claim to the attention of physicians and surgeons, for further and more extensive trials of its virtues than have heretofore been made. (For the Chemical Analysis, see Appendix.)

* Barton's Collections, ed. 3d. par. 2. p. 6.

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TABLE XXVII.

Fig. 1. Represents the upper portion of a flowering specimen of Orobanche Virginiana, separated from the thickest stem of No. 2.

2. The root and lower part of the same.

3. A tubular infertile flower, with its calix.

4. Calix, stamens, and pistil.

5. A fertile flower with the gibbous germ full of immature seeds, situated in the calix.

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ASCLEPIAS SYRIACA.

(Virginian Snake-root.)

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ARISTOLOCHIA SERPENTARIA.

VIRGINIAN SNAKE-ROOT.

Snakeweed Root. Snake-root Birthwort.

Germ. Die Schlangenosterluzey, die Virginische Schlangen oder Vipernwurzel.— Arzeneykräftige Osterluzey. (Willd.)

Dutch. Slangenwortel, Virginische Slangenwortel.

Danish. Slangröd.

Swedish. Ormrot.

French. L'aristoloche serpentaire, *vulg.* Serpentaire ou Coluvrine de Virginie.

Portugu. &c. Serpentaria de Virginia.

ARISTOLOCHIA serpentaria. L. Sp. Pl. 1363. Mat. Med. 196. Gron. Virg. 140. Mill. Dict. n. 6. Pluk. Alm. 50. t. 148. f. 5. Catesb. Car. 1. p. 29. t. 29. Raj. Suppl. 394. Mor. Hist. 3. p. 510. s. 12. t. 17. f. 14. Pluk. Alm. 50. t. 78. f. 1. Willd. Sp. Pl. tom. iv. par. 1. p. 159. Walt. Carol. 223. Woodv. ii. 291. t. 106. Gron. Virg. ed. 1st. 112. Park. theatr. 420. Ger. by Johns. 848. n. 6. line 16th? Bannister in Phil. Trans. Abr. ii. 644. Alst. 1. 520. Chalm. 1. 67. 149. 152. 155. 165. 186; ii. 6. 115. 167. 208. Hume in Lett. and Ess. 257. Lew. ii. 364. Mead. Mon. ii. 90. Ploucq. Bibl. 1. 506. 516. Pott. iii. 158. Quarin. Febr. 36. 69. 92. 121; animad. 176. Smyth Jail Dist.

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121. Stoll. Med. iii. 109. Underw. 1. 77. 259. Pharm. Edin. Hoven, account from, in Med. Rev. ii. 363. Lew. Disp. by Dunc. 153. Murr. J. i. 184; ii. 69. Pearson, R. i. 245; ii. 170; ed. 2d. 328. Valentine, account from, in Chir. Rev. xi. 240. Pharm. Lond. Berg. 716. Bruce in Lind. Hot Clim. 254. Cartheus. iii. 68. Cold. in Med. Obs. i. 221. Cull. ii. 85. Dale 194. Douglas, account from, in Med. Ess. iv. 390. Fuller. Pharm. 75. Geoffr. ii. 141. Herm. 36. Hill 61. Hillary Barb. 128. 165. Lin. 285. Mead. Mon. i. 33. 46. Mill. Jos. 410. Monro, iii. 265; Sold. 258. Murr. i. 348. Robertson Fev. 375. Rutty. 482. Schoepf. 131. Spielm. 297. Stoll. Med. 1. 8. 45. 54. aph. n. 678. Underw. 1. 94. Vog. 211. Wintringh. in Mead. 1. 223. 230. Pharm. Austriaco. Prov. 67. Clark. Long Voyag. 175. 261. Hume, in Lett. and Ess. 229. Jackson Jam. 236. 322. 333. Lempr. ii. 162. 174. 191, 192. Lind. Hot. Clim. 104; Seam. 202. Moseley 162. 169. 222. Pott iii. 359. Pringle 274; app. 108. Lind. Seam. 259. Pringle 311. Rush v. 182. Bisset Ess. 75. Stokes's Bot. Mat. Med. ii. p. 275. Barton's Collections, 3d. ed. Coxe's Disp. 3d. ed. 201. Thatcher's Disp. 3d. ed. p. 151. Pharm. Mass. Med. Soc. 7. Barton's Cullen, ii. 59, 60, 61. Dyckman's Edin. Disp. 183. Pursh. Fl. Am. Sep. ii. 596. Mich. Fl. Boreali-Am. ii. 162. Muhl. Cat. 85. Nutt. Gen. Am. Pl. ii. 199. Bart. Prod. Fl. Ph. 87. Bart. Comp. Fl. Ph. ii. 146.

ARISTOLOCHIA.

Gen. Pl. ed. Schreb. n. 1383.

Nat. Syst. Juss. *Aristolochiæ.* Classis VI. Ordo I.

Nat. Ord. Lin. *Sarmentaceæ.*

Artificial Syst. Lin. Classis *Gynandria.* Ordo *Hexandria.*

Cal. none. *Cor.* 1-petala, ligulata, basi ventricosa. *Caps.* 6-locularis, polysperma infera.

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ARISTOLOCHIA, T. L.* *Aristoloche.* Calix coloratus tubulosus, basi ventricosus, apice dilatatus, in ligulam extensus, antheræ 6-subsessiles sub-stigmate. Stylus subnullus; stigma 6-partitum. Capsula 6-gona, 6-locularis. Caulis erectus aut volubilis; folia alterna; flores axillares; tubus quorumdam scyphiformis incurvus. Juss. Gen. Plant. ed. 1789. p. 73.

Calix none. *Corolla* of one petal, ligulate, with a ventricose base. *Capsule* six-celled, many-seeded, inferior.

Gen. Ch. *Cal.* none. *Cor.* Monopetalous, tubular, irregular; base swelling, subglobular, tortulose; tube oblong, hexagon-cylindric; limb dilated, extended below into a long tongue. *Stam.* Filaments none; anthers six, fastened at the bottom of the stigmas, four-celled. *Pist.* Germ oblong, inferior, angular; style scarcely any; stigma sub-globular, six-parted, concave. *Per.* Capsule large, six-angled, six-celled. *Seeds* several, depressed, incumbent. Ency.

Ess. Gen. Ch. Stigmas six. *Cal.* none. *Cor.* Monopetalous, tongue-shaped, entire. *Caps.* six-celled, inferior.

ARISTOLOCHIA serpentaria: foliis cordatis oblongis, acuminatis, caule flexuoso adscendente, pedunculis radicalibus, corollæ labio lanceolato. Willd.

Leaves cordate, oblong, acuminate; stem flexuous, adscendent; peduncles radical; lip of the corolla lanceolate. B.

SYNONYMA.

ARISTOLOCHIA pistolochia, s. serpentaria Virginiana, caule nodoso. Pluk. Catesb.

ARISTOLOCHIA pistolochia, caule nodoso; s. serpentaria Virginiana. Raj.

ARISTOLOCHIA polyrhizos Virginiana, fructus parvo pentangulari. Moris.

POLYRHIZOS Virginiana. Park.

PISTOLOCHIA Virginiana. Ger. by Johns, (the figure is A. sempervirens.)

PISTOLOCHIA, or Serpentaria Virginiana. Bannister.

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SERPENTARIA Virginiana of some Pharmacopœias and medical writers, as quoted in the list of references.

SERPENTARIA Virginica. Pharm. Austriaco. prov.

SNAKE-ROOT of Clark, Hume, Jackson, Lempr., Lind, Moseley, Pott, Pringle, &c. &c.

VIRGINIAN Snake-root of Lind. Seam. 259. Pringle, 311. Rush, v. 182. Underw. &c. &c.

SERPENTARY of Blane.

SNAKEWEED-ROOT of Bisset.

VIPERINE of Chom.

PHARM.

Off. The root.

ARISTOLOCHIÆ serpentariæ *Radix.* Ed.

SERPENTARIÆ *Radix.* Lond.

SERPENTARIÆ Virginianæ *Radix.* Dub.

OFFICINAL PREPARATIONS.

TINCTURA Aristolochiæ serpentariæ. Edin. Lond. Dub.

TINCTURA Cinchonæ compositæ. Lon. Dub.

ELECTUARIUM Opiatum. Edin.

CATAPLASMA Cumini. Lond.

THE little plant which is the subject of this article, is well known in physic, having been long employed by practitioners of the healing art in many parts of the world, and always with the effect

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of supporting its reputation as an important, active and useful medicine. It belongs to a genus containing about forty-one species, twenty of which are shrubby and indigenous to the tropical regions of America. One of these is described by Baron Humboldt, as growing on the borders of Madalena, which produces flowers so large as to afford hats for children. Several species are endued with medicinal virtues, but none in so remarkable a degree as the present one. The Aristolochia rotunda, A. longa, A. Clematitis, were formerly admitted into the Materia Medica of the British pharmacopœias; and the last is still retained by the Edinburgh College.

The generic term Aristolochia, (Birthwort,) is derived from ἄριστος, and λόχια, or λόχεια, from the supposed use of the plants it comprises, in disorders attendant on parturition. The species indigenous to North America, according to Muhlenberg, are four in number, A. sipho, (broad-leaved Birthwort, or Dutchman's pipe;) A. serpentaria, (snake-root,) A. hirsuta (hairy Birthwort,) and A. sagittata, (arrow-leaved Birthwort.) On an examination of the specimens of these species in the Muhlenbergian Herbarium, the *serpentaria*, *hirsuta* and *sagittata*, appeared very closely allied; and on tasting and smelling the roots I could perceive no difference in their sensible properties. The A. hirsuta, is the tomentosa of Mr. Nuttall; and the A. sagittata, of which I have given an outline figure of two leaves from different specimens, (Fig. 6, 7.) is the hastata of Mr. Nuttall. This is hardly a distinct species, unless there be some well marked discrepancy in the flowers.

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The most common species in the United States, is the *serpentaria.* It has a perennial root, consisting of very numerous small fibres, proceeding from a short gibbous caudex. The small roots are of a yellow ochre colour, and become deep brown or black, on drying. The thick and knotty portion of the root is brown. The stems are slender, round, weak, flexuose, from eight to ten inches high, and jointed at irregular distances. The upper portion is yellowish, the lower purple.

The leaves are lanceolate-cordate, entire, acuminate, of a yellow-green colour, and have short petioles. The flowers are solitary, and consist of a monopetalous, brownish-purple, tubular and irregular corolla, without any calix. The peduncles which are slender, round, and jointed, and occasionally garnished with a scale or two, are radical or nearly so, and so arcuate as to bury the flower for the most part beneath the earth or dead leaves near the roots. The filaments are wanting, and the six anthers are attached to the stigma, which is nearly globular. The hexagonal capsule is dark brown, and consists of six cells, which contain several minute flat seeds. This plant flowers in May and June, and ripens its seeds by the last of September. It inhabits rich shady woods from New England to Carolina, and Pursh says it is particularly abundant in the mountains. In the neighbourhood of this city it is not common; it is however found in some of our woods, both on the east and west side of the Delaware.

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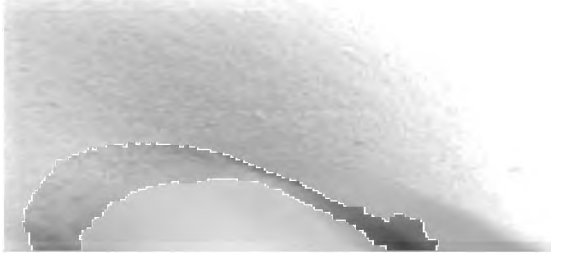
CHEMICAL ANALYSIS.

"Snake-root has an aromatic smell, approaching to that of valerian, but more agreeable, and a warm, bitterish pungent taste, which is not easily concealed or overpowered by a large admixture of other materials. It gives out its active matter both to water and rectified spirit, and tinges the former of a deep brown, the latter of an orange colour. Greatest part of its smell and flavour is carried off in evaporation or distillation by both menstrua: along with water there arises, if the quantity of the root submitted to the operation be large, a small portion of pale-coloured essential oil, of a considerable smell, but no very strong taste, greatest part of the camphorated pungency, as well as bitterness of the root, remaining in the inspissated extract. The spirituous extract is stronger than the watery: not so much from its having lost less in the evaporation, as from its containing the active parts of the root concentrated into a smaller volume; its quantity amounting only to about one-half of that of the other."*

"Treated with alcohol it affords a bright green tincture, which is rendered turbid by water; by filtration a small portion of green matter is separated, but its transparency is not restored. It neither

* Lewis, M. M. p. 602.



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precipitates tannin nor gelatin, nor affects the salts of iron or tincture of turnsole. When the diluted tincture is distilled, the spirit and tincture pass over milky, strongly impregnated with its peculiar flavour."*

MEDICINAL PROPERTIES.

It is remarkable that the snake-root, which is so deservedly esteemed as a medicine, has no reputation among regular practitioners as a remedy for those affections for which it was first brought into notice. It is now universally acknowledged to be useful in certain diseases, for which it was not thought of as a remedy, until a considerable period subsequent to its introduction into medical practice.

In 1635, Dr. J. Cornutus published at Paris, a work entitled "Canadensium plantarum, aliarumque nondum editarum, Historia;" and in that book noticed the serpentaria under the name of Radix Sanagroel Nothæ Angliæ, and extolled it as an effectual remedy for the bites of the most poisonous serpents.† The ancient and now exploded doc-

* Edin. Disp.

† M. M. vol. 1. p. 521.

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trine, that the morbific matter of malignant fevers was analogous to the poison of serpents, and that its influence on the human system might be obviated by the same means, led to the employment of the snake-root in all fevers of a malignant type.* In accordance with those notions, this plant was considered the most powerful of the medicines termed alexipharmics, or antidotes to poisons.† But this practice, originating in the erroneous ideas of the old physicians, was not without its usefulness. The employment of snake-root in malignant fevers, led to its more general use in fevers of another kind; and it was not long before, by the united consent of the medical world, this plant was acknowledged to be a powerful diaphoretic stimulant and tonic; and peculiarly suited, from the antiseptic virtue which it is generally believed to possess, to such cases of disease as required powerful remedies endued with such properties. The high authority of Lind, Huxham, Hillary, Lysons, Monro, Cullen, Rush, and others, is not wanting to support the claim of serpentaria to a distinguished rank in the Materia Medica. It has been recommended to be used in combination with Peruvian bark, in intermittent and continued fevers; and the bark has been found more efficacious when thus used in union with the serpentaria, than when employed alone.‡ It should be recollected, that the medical powers of this plant depend

* Woodville Med. Bot. vol. 2. p. 292.

† Ibid.

‡ Woodville and Lysons' Practical Essays upon Intermitting Fevers, p. 13.

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chiefly on an essential oil, which it abundantly yields; and as this, like most other essential oils, is heating and stimulating, the snake-root, consequently, cannot be safely administered when the pulse demands blood-letting. But in the secondary stage of fevers, or after the inflammatory action has subsided or been subdued; and especially when the skin is obstinately dry, the paroxysms not terminating by sweat, then the serpentaria may be used with much advantage. It produces an immediate action on the skin, and is gently diuretic. During a very extensive practice in Norfolk, Virginia, in the years 1809 and 1810, while surgeon of the frigate United States, I had many opportunities of witnessing the efficacy of the serpentaria in cases similar to those above described, as well as in typhus fever. The sick lists were daily crowded with cases of fever incident to that climate, and arising from the exposure of the crew; and at one time they contained cases of typhus to the daily number of from twenty to forty for a month or six weeks together. It was my constant practice to use the serpentaria in those fevers, in various ways, as tincture, (the officinal,) in substance, and in union with camphor and Peruvian bark. In no instance had I reason to be dissatisfied with this practice, to which I have adhered in a multitude of similar cases since that time, with the same beneficial effect. While I was attending physician of the army in the fourth military district, during the late war, the hospital for recruits, and the lazaretto hospital, where I also prescribed, were continually crowded with cases of pneumonia typhoides. Many of the subjects of this disease, were afflicted with

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unusual malignant symptoms, and great tendency to rapid prostration of the system. Encouraged by my former success, I used the serpentaria still more extensively, often alone, but most commonly with camphor, polygala senega and Peruvian bark. In some instances, the malignity of the disease made rapid strides to dissolution; but in not a few I had every reason to believe the use of the snake-root had been of infinite service, particularly in relieving bilious vomiting. Upon the whole, I am inclined to think that the serpentaria is entitled to a much more general use in our fevers with putrid tendency, than is usual. Throughout the United States, the country practitioners are much more in the habit of prescribing it in autumnal and other fevers, than the physicians of large cities, but as their voices are united in favour of the success of that practice, it would be well if it were more commonly imitated. The antiseptic virtues of serpentaria have led to its use in gangrene; and it is often externally applied as a gargle in putrid sore throat. It has been found serviceable in dyspepsia, and has been known to remove the disease in a short time, and remarkably to renovate and strengthen the lost tone of the stomach. It has also been recommended in exanthematous diseases, when the fever is of the typhoid type, to support the action of the skin, and keep out the eruption. I have known it used in tincture, on the borders of York and Elizabeth rivers, in Virginia, as a prophylactic against agues.

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TABLE XXVIII.

Fig. 1. Represents the Aristolochia serpentaria in flower, of the natural and common size.

2. A section of the corolla, with the germ.

3. The capsule.

4. A seed.

5. The reverse of the same.

6. A leaf of the variety in the Muhlenbergian Herbarium.

7. Another leaf from a different specimen in the same.

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Table 29

Drawn from Nature by W. F. C. Barton

Tanner, Vallance Kearny & Co.

BAPTISIA TINCTORIA.

(Wild Indigo.)

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BAPTISIA TINCTORIA.

WILD INDIGO.

Indigo-weed. Horse-fly-weed. Broom.

Germ. Färbende Podalyria. (Willd.)

BAPTISIA tinctoria. L. Sp. Pl. 534. Mant. 377. Mill. Dict. 3. Lamarck Illustr. Gen. t. 327. f. 1. Houttuyn. Lin. Pfl. Syst. 6. p. 500. Willd. Sp. Pl. tom. ii. par. 1. p. 503. a. Murr. 391. Hort. Kew. ii. 534. Gron. Virg. 64. Pluk. Alm. 129; Phyt. t. 86. f. 2. Ehret. t. 1. f. 3. Schoepf 63. Cutler 473. Mich. Fl. Borealí-Am. i. 265. Pursh Fl. Am. Sep. i. 308. Nutt. Gen. Am. Pl. i. 281. Muhl. Cat. 42. Bart. Prod. Fl. Ph. 48. Bart. Comp. Fl. Ph. i. 206. Big. Florula Bost. 104. Thacher's Disp. 3d. ed. 360. Coxe's Disp. 3d. ed. 567. Brown in Hort. Kew. vol. 3. p. 5. Bot. Mag. 1099. Woodville Med. Bot. ii. 292. Dyck. Ed. Disp. 382. Comstock in Eclec. Rep. vol. 6.

BAPTISIA.

VENTENANT. R. Brown.
PODALYRIA. Michaux, Lamarck.
SOPHORA. Lin.

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Nat. Syst. Juss. *Leguminosæ.* Classis XIV. Ordo XI.

Nat. Ord. Lin. *Papilionaceæ.*

Artific. Syst. Lin. Classis *Decandria.* Ordo *Monogynia.*

Calix half 4 or 5-cleft, bilabiate. *Corolla* papilionaceous, petals nearly equal in length; vexillum laterally reflected. *Stamina* deciduous. Legume ventricose, pedicellate, many-seeded.—Brown Hort. Kew. 3. p. 5.

BAPTISIA tinctoria; glaberrima, ramosissima, microphylla; foliis ternatis subsessilibus, foliis cuneato-obovatis rotundato-obtusis, stipulis obsoletis oblongis acutis petiolo multoties brevioribus, racemis spicatis terminalibus; leguminibus ovatis longo-stipitatis.—Willd. and Pursh.

Very glabrous and much branched, small-leaved; leaves ternate, subsessile, folioles cuneate-obovate, round, obtuse; stipules obsolete, oblong-acute, much shorter than the petiole; racemes spiked, terminal; legumes ovate, on long footstalks.—Bart. Comp. Fl. Ph.

SYNONYMA.

SOPHORA tinctoria. Sp. Pl. 534.

PODALYRIA tinctoria. Mich., Lam., and Wild.

PHARM.

BAPTISIÆ tinctoriæ, Radix et Herba.

THE subject of this article was originally referred by Linnæus to the extensive genus Sophora. Michaux, Lamarck, Willdenow, and others, assigned it a place under the genus Podalyria: and more recently it has been placed by Brown and Ventenant, as a species of

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Baptisia. The latter name is given here, because it more properly belongs to the genus it designates, than to either of the other two. This fine, luxuriant, bushy plant is a native of North America, and is almost universally known by the English name at the head of this chapter.

The root is perennial, large, ligneous, irregularly shaped, of a bistre colour, inclining to black externally, and yellowish within. The radicles proceeding from the main root, which is occasionally ramified, are numerous, and of a lighter colour than the caudex. The stalks are two or three feet high, round, yellowish-green, smooth, and covered with an infinite number of black dots. They are much ramified, and become more yellow towards their extremities. The leaves are small, seldom larger than the thumb-nail, ternate, cuneate-cordate, nearly sessile, and of a deep indigo-bluish-green. The stipules are very minute and evanescent. The flowers are gamboge-yellow, becoming black, (as indeed the whole plant does upon drying,) after being plucked, or sometimes even while they remain on the bush, after bloom. They are numerous, and situated in loose spikes on the extremities of the branches, and are supported by slender peduncles. The seed-vessel is an inflated, oblong pod, of the same bluish hue as the mature leaves, inclining to crow-black. The period of flowering is from the beginning of July to the middle and last of August.

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Wild indigo is a common plant in the United States, being found in every state of the union. It promiscuously inhabits a variety of situations, though almost always in a dry soil. It seems to prefer the borders of dry hilly woods, being found in most abundance in such places; yet the borders of thickets, and the edges of cultivated fields, are frequently decorated by the numerous gay flowers of this pretty plant. It is seldom seen in moist situations; though on the edges of low woods in Jersey, and sometimes in the marshy thickets it is met with: and it must be acknowledged, that in these situations it does not appear to deteriorate; so that I fancy it possesses a flexible constitution, enabling it to accommodate itself with facility, to many scites widely discrepant in the nature and effect of their peculiar soils.

MEDICINAL PROPERTIES.

Both the root and plant may be used for medical purposes. The former has no smell, but is subacrid and a little nauseous to the taste. This remark applies only to the bark of the root, which is thick. Though wild indigo is manifestly an active plant, it has excited, hitherto, comparatively, little attention among any other than empirical practitioners; but among the latter I am strongly inclined to suspect it is very generally used. It has happened to me on several

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occasions during my herborizing excursions, to meet with negroes and others, collecting large quantities of this plant, which they always spoke of by the name of wild indigo. My enquiries of these people, who in every instance, except one, were collecting for other persons, convinced me the search for the plant was for medical purposes. It does not, however, appear likely, that in any other way than as an external application, the Baptisia will become useful in medicine. I am inclined to offer this opinion, from my own trials with it, and those of other persons. Yet, as an external remedy in certain affections presently to be mentioned, it is far from being devoid of usefulness; and I here present it to the notice of physicians, as an antiseptic and sub-astringent plant, capable of correcting the vitiated discharges of foul and gangrenous ulcers; and checking the progress, perhaps, of mortification, when used simultaneously with the internal administration of Peruvian bark. The cathartic and emetic effect which has occasionally followed its use in large quantities, should, I think, be disregarded as far as any benefit may be expected from their effects; neither do I believe the diaphoretic effect which has supervened upon the free use of the decoction and infusion, in my own hands, and in the trials made by others, is entitled to any attention; because, like its purgative and emetic effect, it only followed the use of the article, pushed to considerable and inconvenient extent. It is also slightly stimulant, both in the powder and in the decoction of the root, but probably not more so, than any active substance introduced into the stomach.

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After premising these cautionary remarks, I shall notice the extent of the information relative to the medical powers of this plant, as contained in the only two publications of any claim to authority, that have met my eyes; the Dispensatory of Dr. Thacher of Plymouth, (New Eng.) and a paper by Dr. Comstock, published in the Eclectic Repertory. To these gentlemen, confessedly, is due the credit of bringing this plant into notice, which will sufficiently excuse my giving in their own language the result of their experience. "In the hands of some physicians," says Dr. Thacher, "it is found to operate in a large dose, with much severity as an emetic and cathartic. But a weak decoction of the root has frequently been given with the effect only of a mild laxative. A decoction of the bark of the root has, it is said, been made known by an empiric experienced in its use, as a remedy in scarlatina anginosa; and its employment has been extended in a few instances to typhus or putrid fever with such good effect as to encourage further trials. An experienced physician considers it as an excellent antiseptic and febrifuge, preferring it in some fevers to Peruvian bark. As an external application, its antiseptic qualities ought to be more extensively known. In the form of fomentation or cataplasm it has proved eminently beneficial when applied to phagedenic and gangrenous ulcers, especially if the decoction be administered internally at the same time.

"Some experiments have been made with the pulverized root in doses of twenty to thirty grains, for the purpose of ascertaining its

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emetic and cathartic powers, but without a very favourable result. It appears to possess valuable antiseptic properties, as an external application to vitiated ulcers of almost every description; an infusion of the root has surpassed in efficacy any other remedy which I have ever employed. In aphthous and other ulcers of the mouth, sore nipples, chronic sore eyes, and in various painful ulcers, discharging acrid matter, the assuaging and healing qualities of an infusion of wild indigo root has answered every expectation in practice. Impressed with the assurance of its great utility, and solicitous to diffuse an experimental knowledge of it more extensively, I was induced to furnish several medical friends in Boston with the root, to be used in the marine hospital and in the almshouse, particularly in cases of syphilitic ulcers; nor has the result disappointed my sanguine expectations. In their hands it has proved extremely beneficial when applied to venereal ulcers, mercurial sore mouth, and other ulcerous affections. In malignant ulcerous sore throat, no opportunity has presented for trial, but the happiest effects are anticipated in that disease, as well as others of a putrid nature. An ointment may be made by simmering the fresh root in hogs lard, or in cream, to be applied to burns and ulcers. The virtues of the root appear to be considerably diminished by long keeping."*

Dr. Comstock, of Rhode Island, has had considerable experience with this article, and he details† an instance of its successful exhibition,

* Thach. Disp. p. 361.

† Eclectic Repertory, vol. 6.

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in a case of inverted uterus. The Baptisia was used in decoction, as a local application to the protruded viscus which was nearly gangrenous, at the same time that bark was given internally, and he remarks, "as to the remedy used in this case to stop the progress of gangrene, (Sophora tinctoria,) I am disposed to consider it a very powerful antiseptic; having, besides the above, used it in a great many other cases wherein mortification was threatened or actually present, with the most decided benefit, both externally and internally." The same gentleman has recently corroborated the above favourable statement of the antiseptic virtues of this article, in a letter addressed to a gentleman* in our University, who has made this plant the subject of his inaugural dissertation. "I would observe," says Dr. Comstock in the letter alluded to, "that it is used in cases of mortification, in fevers supposed to be putrid, and inclining to putrescency, and in general where antiseptics are indicated. In cases of mortification it is used as a poultice, applied externally, or in strong decoction as a fomentation. When used internally, I consider an ounce of the recent root to a pound of boiling water, about a suitable proportion. The quantity to be administered of this decoction, is half an ounce, in from four to eight hours. If it proves cathartic, the quantity is to be diminished, or laudanum to be given with it. I consider it to be the most powerful antiseptic in use, and it is very frequently resorted to by the people in this part of the country, and by some practitioners of medicine."

* Mr. Weems.

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The foregoing remarks are unquestionably entitled to much credit. They are amply sufficient to induce an extensive use of the wild indigo for its antiseptic virtues, and I am glad to say, that my own trials of the decoction as an external application to foul ulcers, fully corroborates the reports of Drs. Comstock and Thacher.

Œconomical uses.

The young shoots of this plant, which resemble asparagus in appearance, have been used in New England as a substitute for it. Like the young shoots of poke, however, they have occasionally produced drastic evacuant effects.

The very common practice in the country of placing this plant about the harness of horses, to kill or drive away flies, has given it in some places the name of Horse-fly-weed. It is supposed that the leaves and flowers contain something noxious or deleterious to the flies, for it is said, I know not with what truth, more effectually to keep off those insects, than any other plant.

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TABLE XXIX.

Fig. 1. A flowering twig of Baptisia tinctoria of the size of nature, culled in the month of August, when the capsules begin to be formed.

2. The vexillum or banner of the corolla.

3. One of the wings.

4. The carina or keel.

5. Calix, stamens, and pistil.

6. Pistil.

7. The calix.

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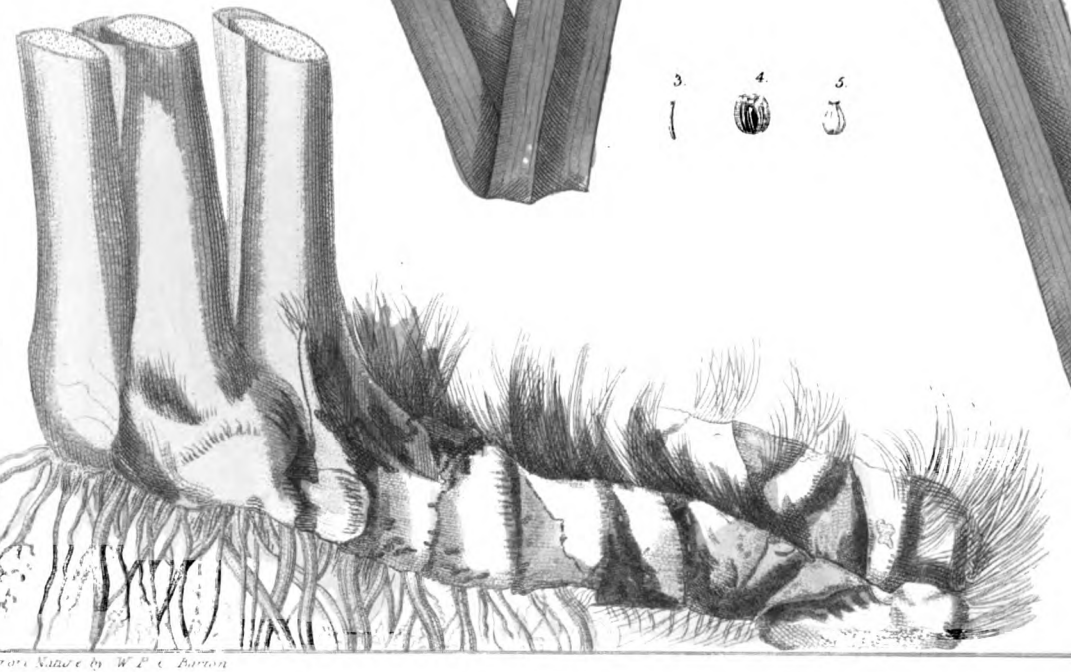
Fig. 1.

Fig. 2.



3. 4. 5.

Drawn from Nature by W. P. C. Barton.

Tanner, Vallance, Kearsley & Co. sc.

ACORUS CALAMUS.

(Sweet Flag-Calamus.)

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ACORUS CALAMUS.

CALAMUS. SWEET-FLAG.

Germ. Vielleicht der acorus der Alten; Acorus verus Calamus officin.; Acorus odoratus. Der Kalmus oder Calmus; die wohlriechende Schwertlilie. Gemeina Calamus. (Willd.)

Dutch. Kalmus.

Dan. Kalmus, Calmus.

Swed. Kalmuss.

Engl. The sweet smelling flag; sweet cane; sweet grass; myrtle-flag; sweet myrtle-grass.—*Galic.* Milsean-mara.

French. L'acore odorant. *Lamarck;* L'acorus véritable. *Bom.*

Ital. Acoro, calamo odorato, canna odorifera.

Span. Acoro cálamo. (Im arancél de rentas y diezmos del ano de 1709 wird er *calahis* genannt.)

Port. Acoro calamo; canna cheirosa.

Russ. Koren, Ir.

Poln. Tatarskie ziele.

Bohm. Pruskworek, Prasskworec.

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Hunga. Kalmuss.

Lett. Kalmus sakkenes, karweles, Karili. *Fischer.*

Ehstn. Kalmusfid, kalmus; So ingwer.

Fran. L'acorus des Indes ou asiatique. *Bom.*—La bassombe. *Lamarck.*

Malab. Waembu. *Rheed.*

Ceylon. Vazumbo.

Java. Deryngo.

Japan. Kawa sobu. *Thunb.*

Bra. Bembi.

Egypt. Cassabel, Bamira.

Hebr. Kneh-boschem.

Acorus Calamus; Ait. Hort. Kew. 1. p. 474. Roy. Lugd. 6. Fl. Suec. 277. 297. Mat. Med. p. 96. Hall. Helv. n. 1307. Gmel. lib. 1. p. 1. Scop. Carn. n. 426. Pollich. Pal. n. 343. Ludw. ect. t. 34. Kniph. Ceut. 9. n. 3. Hoffm. Germ. 123. Roth. Germ. i. 153. ii. 398. *α. Acorus vulgaris,* Bank. Pin. 34. Hort. Cliff. 137. Blackw. t. 466. Mor. Hist. 3. p. 246. s. 8. t. 13. f. 4. Tabern. 642. *β. Acorus verus.* Herm. Lugdb. 9. Fl. Zeyl. 132. Garz. 288. c. Rumph. Amb. 5. p. 178. t. 72. f. 1. Rheed. Mal. 11. p. 99. t. 60. Houttuyn. Lin. Pfl. Syst. 6. p. 354. Smith. Brit. Fl. 373. Engl. Bot. t. 356. L. Suec. n. 297. Sp. Pl. 462. Willd. Sp. Pl. tom. 11. par. 1. p. 199. Woodville Med. Bot. 472. t. 173. Bot. Arrang. 357. Mich. Fl. Bor. Am. 1. 194. Huds. 147. Fl. Dan. t. 1158. Thunb. Japon. 144. Hort. 196. Scop. Carn. n. 426. Jacq. Vind. 60. Gouan. Hort. 18. Hist. ox. s. 8. t. 13. f. 4. Raii. Syn. 437. Lob. Adv. 29. Dalech. 1618. Clus. Hisp. 521. Lob. Obs. 30, inner fig. and ic. 1. 57. outer fig. Dod. 249. Repr. in Lob. Obs. 30, inner fig. &c. Ger. by Johns 62. Clus. Panr. 259. Cop. in Bankn. J. ii. 734. and Park. Theatr. 140, and Repr. in Ger. by Johns 62. Blackst. Haref. 2. Alst. 1. 356. Cutl. 435. Krock. n. 540. Schrod. 525. Ruttey 9. Dale 259. Geoffr. ii. 2. Herm. 8. Hill. 570. Mill. Jos. 12. Pharm. Edin. Lew. Disp. by Dunc. 127. Mur. J. 1. 195. Pearson, R. ii. 165. Pharm. Lond. Cartheus. iii. 60. Heberd. 161. Hufeland, account from, in Med. Rev. ii. 458. Lin. Hot Clim. 314;

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Seam. 148. Monro iii. 36; Sold. ii. 128. 186. Moseley 169. Neum. ii. 200. Percival ii. 275. Ploucq. Bibl. 1. 129. 176. Quarin. Animad. 170. 172. 175. Spielm. 242. Vog. 189. Pharm. Suec. Berg. 274. Linn. 112. Mur. v. 39, Schoepf 49. Lew. 1. 251. Chom. 180. L. Sp. 463. Herm. Hort. 9. Jour. 1. 259. Boerh. ii. 167. Garzias, ap. Clus. exot. 200. Rheede xi. 99. t. 60.— *Acorus indicus*, Geoffr. ii. 5. Herm. 11. *A. asiaticus*, Dale 259. *A. verus*, Linn. 112. Mur. v. 39. Stokes's Bot. Mat. Med. ii. 283. *A. calamus*, Pursh. Fl. Am. Sep. i. 235. Muhl. Cat. 35. Bart. Prod. Fl. Ph. 43; Compend. Fl. Ph. i. 169. Big. Florula Bost. 83. Pharm. Mass. Med. Soc. 4. Thach. Disp. 3d. ed. 131. Coxe's Disp. 3d. ed. 177. Abbot. 77. Eng. Bot. 356. Dyck. Ed. Disp. 149.

ACORUS.

Gen. Pl. ed. Schreb. n. 586.

Nat. Syst. Juss. *Typhæ*. Classis II. Ordo I.

Nat. Ord. Lin. *Piperitæ*.

Artific. Syst. Lin. Classis *Hexandria*. Ordo *Monogynia*.

Spadix cylindricus, tectus flosculis. *Cor.* 6-petalæ, nudæ. *Stylus* 0. *Caps.* 3-locularis.

Acorus, T. L.* Spadix cylindricus flosculis tectus. Calix 6-partitus persistens. Stamina 6, (calici inserta?) Germen 1; Stylus 0; Stigma punctum prominens. Capsula 3-gona 3-sperma, (3-locul. polysp. ex Lin.) Spadix innascens medio folio ultra producto æmulanti spatham planam. Affinior forté juncis, ex Bern. Jussæo. Juss. Gen. Pl. ed. 1789. p. 25.

Acorus Calamus; scapo mucrone longissimo foliaceo. Willd.

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SYNONYMA.

TYPHA aromatica, clava rugosa. Moris.
ACORUM legitimum. Tabern.
CALAMUS aromaticus. Garz.
ACORUM. Rumph.
WAEMBER. Rheed.

PHARM.

ACORI Calami *Radix*. Edin.
CALAMI *Radix*. Lond.
ACORI *Radix*. Dub.

CALAMUS is a fine aromatic, and well-known aquatic plant. It is truly indigenous to our states, and though not specifically, is slightly different from the foreign vegetable. It is a species of the genus Acorus, a term derived from κορη, the *pupil;* having been formerly esteemed peculiarly beneficial in disorders of the eye. There are only two described species, the subject of this chapter and the A. gramineus, which is cultivated in China. Of the A. calamus, European writers describe two varieties, the *vulgaris*, European sweet-rush, sweet-smelling flag or calamus aromaticus, and the *verus seu Asiaticus*, Indian sweet-rush, or calamus aromaticus. The former is said to be distinguished by " its long sword-shaped leaves, resembling those of the flag, but narrower, of a brighter green, and yielding, when broken, a strong aromatic scent; and also by its oblique cylin-

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dric spike of flowers, proceeding from the side of the stem at the edge of the leaf, which spike is generally single, sometimes double, and more rarely triple, or quadruple. It grows naturally on the banks of rivers, and in shallow standing waters; and is found in many parts of England; and plentifully in the standing waters and canals of Holland, and is, besides, common in many parts of Europe."* The other variety is called the Indian calamus, and grows not only in marshy ditches, but in more elevated and dry places in Malabar, Ceylon, Amboyna, and other parts of the East Indies; it is said to differ little from the European, except in being a little more tender and narrow, and of a more hot and pungent taste. The shops are usually supplied with this article from the Levant: but such roots are said not to be superior to those of the plant indigenous to England; and the same may be said respecting that indigenous to the United States, a figure of which is here given.

The root is perennial, rugose, horizontal, jointed, somewhat compressed, from half an inch to an inch thick, and from six inches to two feet long, sending off from the base, a great number of small and large round fibres, which are sometimes white, and often yellow. The joints are from half an inch to an inch long. They are white, tinged by triangular shades of sienna, rose-red and bistre, and often covered with numerous round elevated spots, occasioned generally by the insertion of the fibrous portions which have fallen off. From these joints, and from the point between the lateral union of the roots,

* Edit. Article Acorus. Rees's Ency.

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bunches of brown fibres resembling coarse hair, are always found when the plant has grown in its natural wet situations. The root is internally of a white spongy texture, and loses nearly one half of its diameter in exsiccation. Its odour is strong, aromatic, subtle and pungent, particularly when dried; and its taste very peculiar, being somewhat saccharine, and agreeably aromatic when first chewed, but upon mastication becoming bitter, acrid and nauseous. The leaves are long, sword-shaped, sheathing, especially at the base; and at their origin from the root are of a red colour mixed with green and white. The flowers are tesselately arranged on a spadix, coming out laterally from the middle of a foliaceous scape, which extends a considerable distance beyond it, so as to have the appearance of a leaf; and indeed it is generally said by botanists, that the spadix proceeds from a leaf. This spadix is solitary, from one and a half to two inches and a half long, something less than half an inch in diameter, cylindrical and attenuated at its base and apex. It is crouded spirally with numerous small greenish-yellow flowers, consisting of six small concave membranous truncated petals, without any calix, and stamens varying in number, from six to five and four, which have thick filaments and double anthers. The germen is gibbous and without any style, being crowned by a pointed stigma. The capsule is somewhat oblong, and contains a great number of small thin seeds in its numerous cells. Its favourite situations are the borders of rivulets, creeks, and small running streams, where it is generally emerged half its height in the water. In these situations it is found in company with different species of Iris, and Typha, (cat's-tail [illegible]

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rush) all which are indiscriminately known by the common name of flag. It is often, however, found in swampy meadows, old ditches, overflowed places, and low moist grounds contiguous to water. It flowers in May and June, at which time it may readily be distinguished from the other plants called flags. Calamus is a common inhabitant of the sites just specified, throughout the United States, and can seldom be sought for unsuccessfully, at the period of its florescence. When out of bloom, the smell of the roots, and indeed, of the whole plant, will readily direct to the spot where it grows.

MEDICINAL AND CHEMICAL PROPERTIES.

The root only of calamus is used in medicine. It is carminative and stomachic, and is used as an ingredient in many bitter infusions. It communicates, however, as has already been remarked, a nauseous flavour to such infusions. ' The root, when dried, has a warm and tolerably strong aromatic smell, and a pungent bitter taste. It contains an essential oil, to which is probably owing its peculiar taste, and the agreeable flavour it is known to communicate to the bitter infusions of which it is an ingredient; for the residuum after distillation has a nauseous flavour dissimilar to calamus. Hoffman* obtained only two ounces of the essential oil from fifty pounds

* Observat. Physico-chym. lib. 1. obs. 1.

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of the root; but Neuman and Cartheuser obtained it in much greater proportions. It was formerly recommended by a writer of authority,* in vertigo, proceeding from a vitiated stomach; and in intermittents, which are said to have been cured by this medicine, after the bark had failed.† To its reputed efficacy in scorbutic and hæmorrhagic complaints, in the words of Dr. Woodville, "little credit should be given, and still less to its supposed elexipharmic power."‡ Calamus also stands as an ingredient in the renowned mithridate and theriaca, and in the compound powder of arum. The candied roots are said to be used by the Turks in Constantinople, as a prophylactic against contagion. The preparations of it enumerated by Murray,§ are, a dry confection of the roots, a distilled water and oil, a spirituous and aqueous extract, and the elixir vitæ Matthioli, and elixir vitrioli Mynsichti. The infusions in water are strongly imbued with the odour of the root, and have a moderately warm and very bitter taste. Spirituous tinctures are more warm and pungent than aqueous infusions, but much less bitter, and have but little smell, and water applied after spirit gains a considerable bitterness.‖ Hence it is evident that water is a better menstruum than spirit to extract the medical virtues of

* De Mayerne, Prax. Med. p. 59.

† Act. Societ. Med. Hav. vol. 9. p. 206.

‡ Med. Bot.

§ App. Med. 2. 5. p. 39.

‖ Lewis, Mat. Med. p. 252. vol. 1.

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calamus. According to Lewis, on distilling the spirituous tincture, the distilled spirit has scarcely any smell or taste of the root, and the extract has very little smell and much less taste than might be expected from so warm and pungent a root.*

It may be necessary to remark, that the American variety of calamus does not differ in medical properties from that imported from Asia and the Levant; or from that indigenous to Europe. While it will be seen, that this article has a conspicuous rank in all European works on Materia Medica, it must be confessed it is at present but little used in this country. Yet the disuse into which it has, undeservedly I think, fallen, is more the consequence probably of that kind of fashion which sways in medicine as in other spheres, than to any want of confidence in the virtues of the medicine. As there is no good reason why this confidence should be impaired, it cannot be improper to urge a recourse to the use of this article, as extensive as its peculiar virtues merit. In my opinion, it is one of the most efficacious stomachics which the Materia Medica presents. Dr. Swediaur recommends it either in the form of extract, (dose half a drachm) or candied, in dyspeptic cases. My experience enables me to say that, in dyspeptic flatulency, and other disorders of the stomach, and in colic, it merits the marked attention of physicians. It has, in my practice, proved ener-

* Lewis, Mat. Med. p. 252. vol. 1.

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getically beneficial in that distressing complaint to which sailors are so frequently subject, from the nature of their life and diet, well known, particularly to naval surgeons, by the name of wind colic; given in hot decoctions in the manner of ginger tea, it quickly relieves the distressing swelling of the belly, by the discharge of wind. It may be chewed by dyspeptic persons, and the juice swallowed, rejecting the pulp; and in this manner it proves a pleasant remedy for indigestion, in the course of a week or two. I have on some occasions prescribed the hot infusion to infants labouring under colic, and with success. In intermittents I have had no experience with it, neither do I know of any authentic accounts on this point; though it has repeatedly been mentioned to me by country people, that they cure agues by the free use of the tincture. When masticated, it stimulates the salivary glands powerfully, producing a copious discharge of saliva. I have heard of its being used in this manner, with success, to cure the tooth ach.

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Œconomical uses.

Beckstein observes, that the leaves are noxious to insects; and it is well known that no kind of cattle will eat any part of the plant. It has been suggested therefore, that the leaves might be usefully employed in destroying the moths that infest woollen cloths, and the worms which injure books.* M. Bautroth has used the whole plant for tanning leather; and it is supposed by Dr. Bohmer, that the French snuff, called *a la violette*, receives its peculiar scent from this root. Throughout the United States, it is used by the country people as an ingredient in making wine bitters

* Mease's Edit. Dom. Ency.

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TABLE XXX.

Fig. 1. Represents the upper portion of the floriferous leaf, supporting the spadix of flowers.

2. The root.

(Of the size of nature.)

3. A stamen.

4. A flower.

5. The stigma and germ.

(Magnified.)

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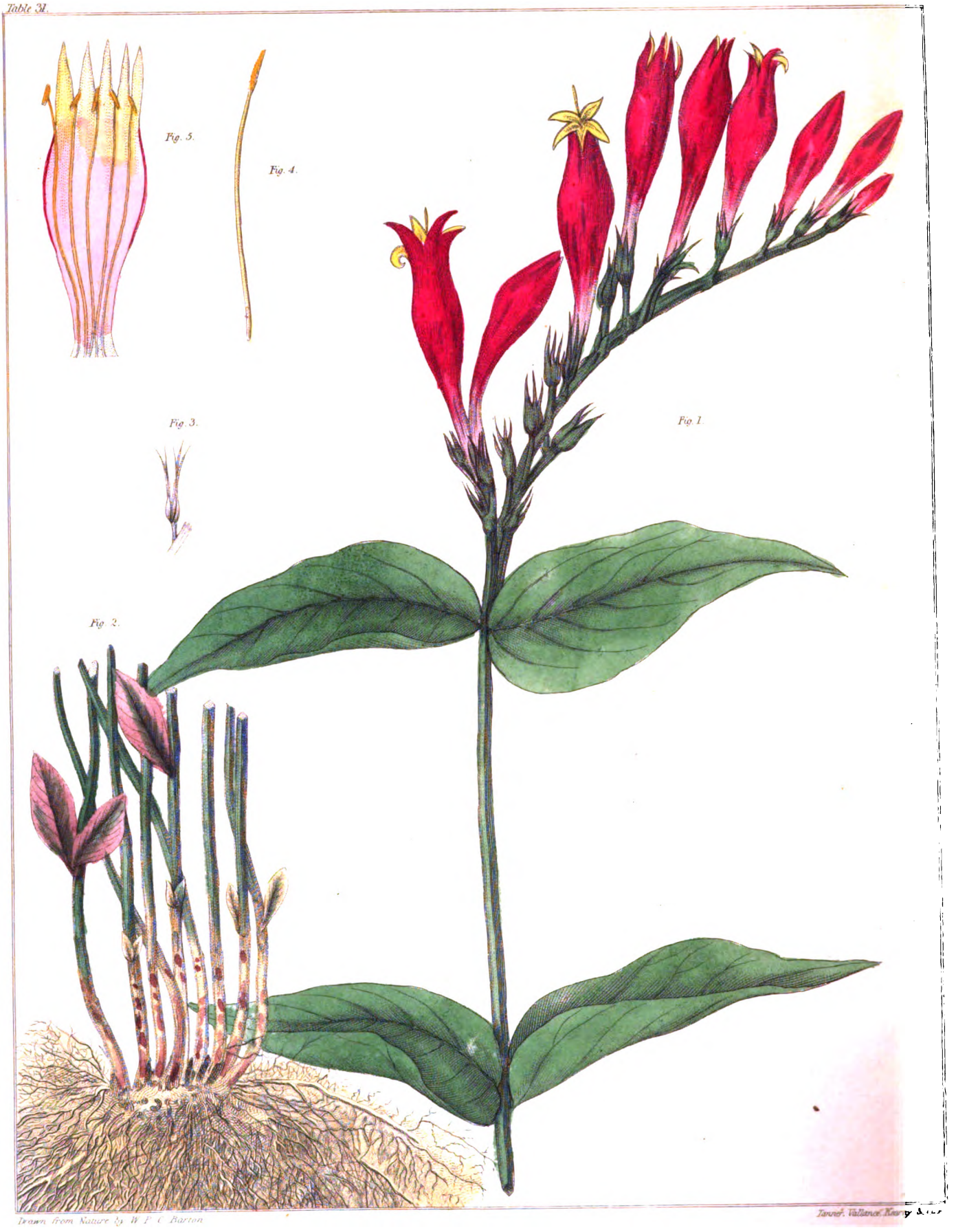

SPIGELIA MARILANDICA.

(Carolina Pink-root.)

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SPIGELIA MARILANDICA.

CAROLINA PINK-ROOT.

Indian Pink. Pink-root. Worm-grass. Carolina Pink. Unsteetla, of the Cherokee Indians.

Germ. **Nordamerikanische Spigelie. (Willd.)**

Spigelia Marilandica. Syst. Veg. 166. Hope. Act. Edin. 3. ann. 1771. p. 151. t. 1. Curt. Mag. 202. L. Sp. Pl. 2. p. 249. Gron. Virg. 142. Rai. Dendr. 32. Catesb. Car. 2. p. 78. t. 78. Houttuyn Lin. Pfl. Syst. 5. p. 502. Curt. Bot. Mag. 1. t. 80. Woodville Med. Bot. 2. 288. t. 105. Walt. Fl. Car. 92. Mich. Fl. Bore. Am. 1. 147. Pursh, Fl. Am. 1. 139. Elliot, Sketch. 1. 236. Gron. Virg. 30. Chalmers, Diseases S. Car. 1. 67. Pharm. Edin. Bart. 39, repr. in Phys. Jour. viii. 428. Lew. Disp. by Dunc. 317. Murr. J. 1. 378. Home, F. Clin. 420. Rush, 1. 185. Schoepf, 21. Monro, iii. 270. Pharm. Lond. Berg. 94. Lew. ii. 377. Vog. 216. Garden in Phys. Ess. iii. 145. Graing. 28. Lining in Phys. Ess. 1. 436. Stok. Bot. Mat. Med. 1. 309. Big. Med. Bot. 1. 146. Willd. Sp. Pl. tom. 1. par. ii. p. 825. Thacher's Disp. 3d. ed. 362. Coxe's Disp. 3d. ed. 568. Pharm. Mass. Med. Soc. 30. Barton's Collections, 3d. ed. par. 1. 38, 39. 61. Dyck. Edin. Disp. 383. Nutt. Gen. Am. Pl. ii. 134.

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SPIGELIA.

Gen. Pl. ed. Schreb. n. 272.

Nat. Syst. Juss. *Gentianæ.* Classis VIII. Ordo XIII.

Nat. Ord. Lin. *Stellatae, β.*

Artificial Syst. Lin. Classis *Pentandria.* Ordo *Monogynia.*

Cor. infundibulif. *Caps.* didyma, 1-locularis, polysperma.

SPIGELIA, L.* *Arapabaca*, Pl.* Calix 5-partitus Corolla infundibuliformis, limbo patens 5-fida æqualis. Stamina 5. Germen didymum; stylus 1; stigma 1. Capsula didyma 2-locularis quasi 2-cocca, 4-valvis polysperma seminibus angulo loculorum interiori affixis. Herbæ; folia opposita (floralia in *S. Anthelmiâ* 4-verticillata;) flores terminales bracteolati spicati aut cymosi, in spicis secundi.

Juss. Gen. Plant. ed. 1789. p. 143.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, deeply five-cleft, pointed, small, permanent. *Cor.* of one petal, funnel-shaped; tube much longer than the calix, narrowed towards the base; limb spreading, cloven into five broad pointed segments. *Stam.* Filaments five, simple; anthers simple. *Pist.* Germen superior, composed of two globes; style solitary, awl-shaped, the length of the tube; stigma simple. *Peric.* Capsule two-lobed, of two cells, and four valves. *Seeds* numerous, very minute.

Ess. Ch. Corolla funnel-shaped. Capsule of two globular cells, with many seeds.

SPIGELIA Marilandica: caule tetragono, foliis omnibus oppositis. Willd.

Stem four-sided, leaves all opposite.

SYNONYMA.

SPIGELIA oppositifolia. Stokes.

SPIGELIA Americana. Monro.

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Lonicera Marilandica spicis terminalibus, &c. Sp. Pl. 2. p. 249. Gron. Virg. 142.
Periclymeni Virginiani flore coccineo, &c. Rai. dendr. 32.

PHARM.

Off. The root.
Radix Spigeliæ Marilandicæ. Edin.
Spigeliæ *Radix*. Lon. Dub.

DESCRIPTIO UBERIOR.

Radix perennis. *Caules* simplices, erecti, scabri, quadrangulares, rigidi, annui. *Folia* opposita, sessilia, ovato-lanceolata, integerrima, glabra, patentia. *Spica* solitaria secunda. *Bracteis* parvulis oppositis. *Calix* pentaphyllus: foliolis subulatis, persistentibus. *Corolla* superne 5-angulata, fauce gibba, basi dilatata: *Limbus* 5-partitus: laciniis lanceolatis revolutis. *Stamina* 5, corolla breviora. *Antheræ* sagittatæ, conniventes. *Germen* superum. *Stylus* teres, inferne articulatus parte superiore decidua. *Stigma* attenuatum. *Capsula* subrotunda, didyma: loculis bivalvibus. *Semina* plurima, angulata, scabra. (*Willd.*)

To a celebrated professor of anatomy and surgery at Padua, Dr. Adrian Spigelius, the genus, of which a species is now to be particularly described, was dedicated by Linnæus. Spigelius was a distinguished botanist* in his day, in consequence of which he was thus

* Dr. Spigelius was a profound anatomist and distinguished surgeon. He was born at Brussels in 1578, and died professor of three branches at Padua, whither his fame

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honoured by the learned Swede. Of this genus there are two other species besides the Marilandica, and which are natives of Brazil and Cayenne.

Spigelia Marilandica is a herbaceous plant, from six to twenty inches high; it has a perennial root, consisting of a multitude of slender fibres, forming together a large bunch, as represented in the plate (Fig. 2.) They are of a yellow colour when recently removed from the ground, and become black when dried. From the root proceed several four-sided, smooth stems of a purplish colour, garnished with two or three small leaves, which are usually of a faded green or brown colour. The leaves are few, sessile and opposite, ovate, acuminated, entire and glabrous, except on the margins and the veins, where they are pubescent. The flowers are borne on a terminal racemous spike, which leans towards one side, and supports from four to twelve flowers, situated on short peduncles. The corolla is funnel-shaped, contracted at the top, and divided into five acute segments. It is of a beautiful carmine colour externally, except towards the base, where it is blended into white; and of an orange-yellow within. The edges of the corolla segments are slight-

had caused him to be invited, in 1625. The works he published are as follow: "Isagoges in Rem. Herbariam Libri duo." "De Lumbrico lato Liber, cum notis et ejusdem Lumbrici icone." "De incerto tempore Purtus." "De Semitertiana Libri quatuor." "De Humani Corporis Fabrica Libri, cum Tabulis 98 ære incisis." "De formato Fœtu liber singularis, æneis figuris ornatus." "Tractus de Arthritide."

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ly tinged with green, which is sufficiently conspicuous when they are reflected. Only one or two of the flowers are expanded at once. The calix consists of five long and narrow leaves, which are a little serrated on the margin; it is permanent, and has the segments reflected when the fruit is mature. The stamens appear to be short and inserted into the corolla towards the upper part: but in all the specimens I have examined, they may be said to have been adnate, and the length of the tube, as represented in Fig. 5. for the filaments could be distinctly traced down to the base of the tube, and easily detached. The anthers are oblong and narrow. Germen superior, ovate; style the length of the corolla, terminated by a long fringed stigma, projecting beyond it a quarter of an inch. The capsule is double, two-celled, and contains many seeds.

This plant is a native of the southern states, where it is abundant. It was formerly found wild near Baltimore, but has been extirpated. Even in Virginia it is rare, and does not grow wild in any state north of it. It is, however, cultivated abundantly in some of our gardens, particularly at Kingsess, where it thrives luxuriantly. From living specimens obtained thence, I made the drawing, from which the plate has been engraved. It grows in rich, dry soils, on the borders of woods, and its time of flowering, according to Mr. Elliot, is from May to July.

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MEDICINAL PROPERTIES.

Carolina pink-root is a medicine of high reputation as a vermifuge. It is said this property was learned from the Cherokee Indians; but it was first brought into notice among physicians by Drs. Garden, Lining, and Chalmers, who have all spoken in strong terms of its anthelmintic virtue. It also acts powerfully as a cathartic, but this effect is uncertain, and only follows large doses. As the plant contains no resin, it yields its principal medicinal virtues to water. It is accordingly given, most frequently, in infusion and decoction. The root is supposed to be more powerful than the plant; but the usual practice is to employ the whole herb in hot infusion or decoction. When given in substance, the powdered root alone is administered. Dr. Garden discovered that the recent plant was most active, and that when the root became old, it was very considerably impaired. This circumstance should be borne in mind, whenever it is necessary to employ the plant in medicine; and when it is known to be old, to make a proportionate allowance for the deterioration. The pink-root occasionally induces violent narcotic effects, such as dimness of sight, giddiness, dilated pupil, spasmodic motions in the muscles of the eyes, and even convulsions. Indeed, Dr. Chalmers attributes the loss of two children, who died

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in convulsions, to this article. Dr. H. Thompson found large doses of the root, to produce in his own system, acceleration of the pulse, flushed face, drowsiness, and stiffness of the eye-lids. Notwithstanding these narcotic effects, which have undoubtedly followed the use of the plant, it is said that no danger need reasonably be apprehended from them: and some eminent physicians even assert, that they merely indicate the favourable operation of the medicine.

The use of pink-root has not been confined to cases of worms. Dr. Garden mentioned, in the first letter to Dr. Hope, which was written about the year 1763, that "its purgative quality naturally led him to give it in febrile diseases, which seemed to arise from viscidity of the *primæ viæ;* and in these cases it succeeded to admiration, even when the sick did not void worms." According to Dr. Garden, the pink-root never does much good, except when it operates gently as a purgative. Hence it has become a common practice to unite calomel or rhubarb with it, in order to ensure the cathartic effect, which has already been said to be very uncertain. He recommended that a vomit should be given previously to the administration of the pink-root; and this practice is often adopted; and almost universally, a mercurial cathartic is given after the pink-root. The late Professor Barton recommends this medicine in the protracted remitting fever of infants, which is supposed to lay the foundation of hydrocephalus. Garden, and others, since his time, have combined the Aristolochia serpentaria with this plant,

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and it is said, with the effect of counteracting the narcotic power of the pink-root. Professor Bergelius* has known instances of convulsions cured by Spigelia, without the expulsion of worms; and Dr. Barton informs us,† that an extensive use of the plant convinced him it often affords relief in supposed cases of worms, but in which none were discharged.

An opinion formerly prevailed that the poisonous effects of Spigelia were not produced by that plant, but by the roots of another, which was accidentally gathered with it. This idea is not, at this time, entertained; and the small black fibres which are found among the roots of the spigelia, and which were supposed to belong to the deleterious plant, are now known to be nothing else than the decayed roots of the spigelia, from the preceding year, and which, according to Mr. Elliot, are particularly visible in the spring, at which time the pink-root is gathered.

The spigelia is somewhat mucilaginous, and is sweetish or insipid to the taste. It is therefore readily taken by children. The dose is, of the dried pulverized root, about fifteen grains or a scruple for a child between six and eight years of age, and half that quantity for an infant under six years. To an adult a drachm or two drachms

* Essays and Observations, Physical and Literary, vol. iii. art. x. p. 149.

† Collections.

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may safely be given. The common mode of administering the infusion is in the proportion of an ounce of the root and plant to a pound of boiling water, of which from one to three table spoonsful may be given to a child, and about half a pint to an adult. If no effect follows, the doses may be augmented.

TABLE XXXI.

Fig. 1. Represents a flowering branch of the Spigelia Marilandica, of its natural size.

2. The lower parts of the stems, with the tuft of fascicled roots.

3. The calix.

4. The pistil.

5. The corolla opened.

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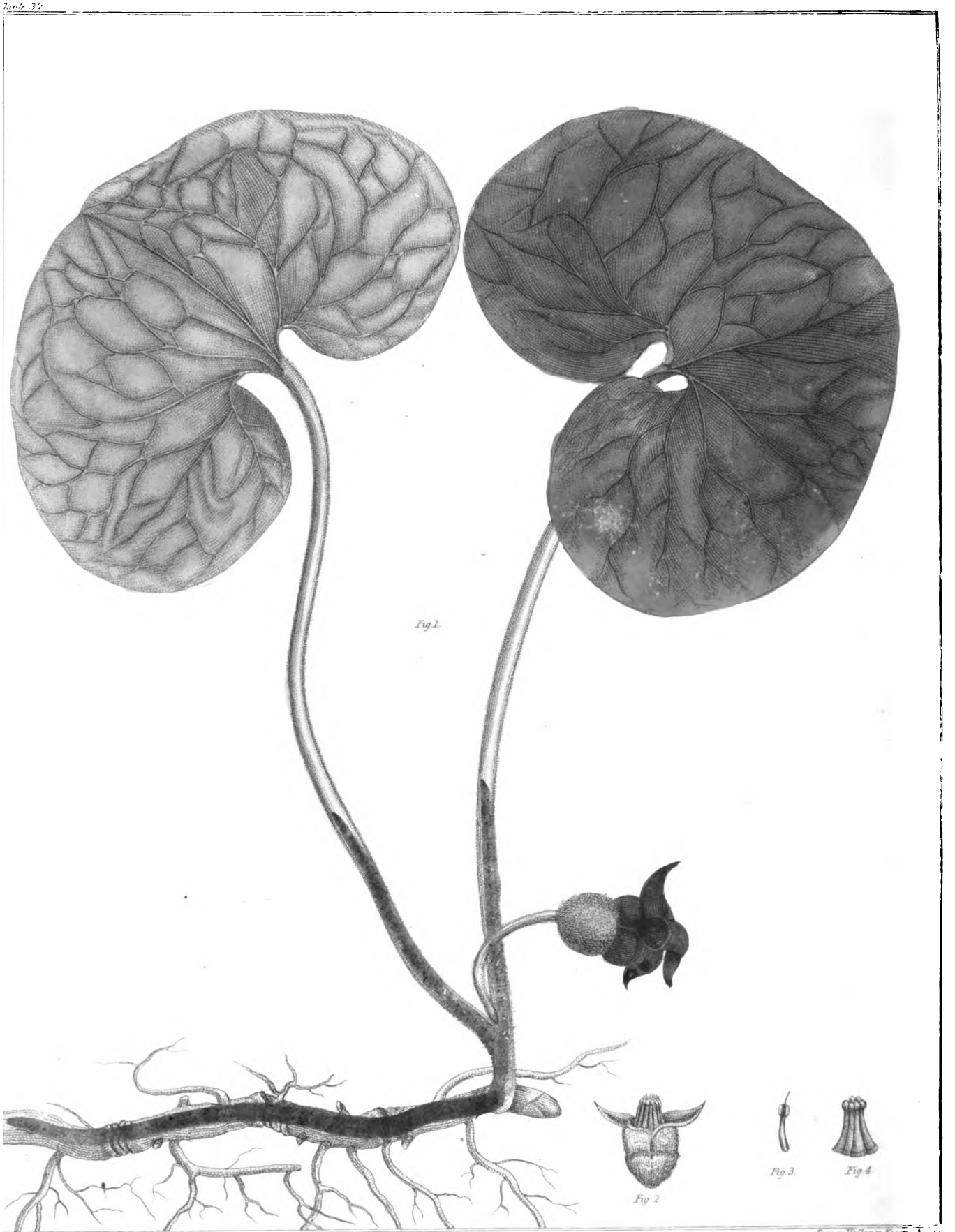

Drawn from Nature by W. P. C. Barton.

Tanner, Vallance, Kearny, Sc.

ASARUM CANADENSE.

(Wild Ginger.)

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ASARUM CANADENSE.

WILD GINGER.

Indian Ginger. Colts-foot. Canada Snake-root. American Asarabacca. Kidney-leaved Asarabacca.

Germ. Canadische Haselwurz. (*Willd.*)

Asarum Canadense. L. Sp. Pl. 633. Hort. Kew. 1. 124. Sal. R. Hort. 344. Gron. Virg. 72. Corn. 24. t. 25. Park. theatr. 266. Hist. Ox. s. 13. t. 7. f. 4. Bart. Collect. 26. 48. ed. 3d. par. 1. p. 24. 27. Big. Med. Bot. 1. p. 150. Coxe's Disp. 3d. ed. 213. Dyck. Ed. Disp. 195. 411. Schoepf, 72. Mich. Fl. Am. Bor. 1. 279. Pursh, Fl. Am. ii. p. 596. Bart. Prod. Fl. Ph. 53. Comp. Fl. Ph. ii. 146. Muhl. Cat. 47. Nutt. Gen. Am. Pl. ii. 200. Willd. Sp. Pl. tom. ii. par. ii. p. 838. Mill. Dict. n. 2. et Illustr. Syst. Thunb. Jap. 190. Salisb. Prod. Chap. Allert. 344. Gron. Virg. 52. Corn. Canad. 24. t. 25. Houttuyn. Lin. Pfl. Syst. 7. p. 3. Walt. Fl. Car. 143.

ASARUM.

Gen. Pl. ed. Schreb. n. 801.

Nat. Syst. Juss. *Aristolochiae.* Juss.

Nat. Ord. *Sarmentaceae.* Lin.

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Art. Syst. Lin. Classis *Gynandria.* Ordo *Dodecandria.*

Asarum, T. L.* *Asaret, Cabaret.* Calix urceolatus 3-fidus. *Stamina* 12 brevia, germini imposita; antheræ mediis filamentis adnatæ. *Stylus* brevis; stigma stellatum 6-partitum. *Capsula* 6-locularis. Radix tuberosa emittens cauliculos 2-phyllos, in foliorum dichotomiâ 1-floros. Juss. Gen. Pl. ed. 1789. p. 73.

Gen. Ch. *Cal.* Perianth one-leafed, bell-shaped, three or four cleft, coriaceous, coloured, permanent; clefts erect, bent in the apex. *Cor.* none. *Stam.* Filaments twelve, subulate, half the length of the calix; anthers oblong, fastened to the middle partition of the filaments. *Pist.* Germ. inferior or concealed within the calix; style cylindric, the length of the stamens; stigma stellate, 6-parted. *Per.* Capsule coriaceous, usually six-celled. *Seeds* several, ovate.

Ess. Gen. Ch. *Cal.* Three or four cleft, placed on the germ. *Cor.* none. *Capsule* coriaceous, crowned. *Stigma* six-cleft. Ency.

Asarum Canadense; A. foliis lato-reniformibus geminatis, calice lanato, profunde tripartito, laciniis sub-lanceolatis reflexis. Mich., Willd., and Pursh.

A pair of broad-reniform leaves; calix woolly, deeply three-parted; segments sub-lanceolate, reflexed.

SYNONYMA.

Asarum latifolium. Salisb.

Asarum foliis sub-cordatis petiolatis. Gron.

Asarum Carolinianum. Walt.

PHARM.

Asari Canadensis, *Radix et Herba.*

DESCRIPTIO UBERIOR.

Folia utrinque minutissime pubescentia. Germen obsolete trigonum. Calix foliolis inferne incurvis cavis, superne plus minus patentibus, planiusculis, marginibus revolutis. Filamenta vix altitudinem stigmatum. Willd.

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The root of wild-ginger is long, creeping, horizontal, jointed, fleshy, and of a light yellowish colour, sending off radicles of the same hue. It smells powerfully aromatic, and is exceedingly grateful. The stems are very short, bifoliate, and bear a single drooping flower, in the fork formed by the junction of the two petioles. These petioles are from six to ten inches long, round, woolly, greenish above, and flesh-coloured below. The leaves are broad, kidney-shaped, pubescent above and below, have strong prominent veins which give the under part a bullated appearance. They are of a rich, shining light-green above; and pale, almost bluish underneath. The calix is very woolly, and is divided into three broad, concave, acuminated segments, with the point reflexed. They are of a deep brown-purple colour at the inside, and of a dull purple, inclining to blue-green externally. I have however found many specimens in which both externally and internally the colour was fine purple. The stamens are clavate, of unequal length, inserted on the germ, and are generally about twelve in number. The anthers are adnate to the filaments close to the ends, a slender point of the filament projecting in each stamen beyond the anther. There are three nectarine filaments or perhaps abortive stamens, inserted near the lacinial divisions of the calix. The pistil consists of an inferior, irregularly hexagonal germ, and a conical deeply grooved style, (or perhaps six styles closely connected together,) crowned by six revolute stigmas. The flower is generally buried under the earth by its drooping uncurved hairy peduncle. The geographical range of the wild-ginger,

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TABLE XXXII.

Fig. 1. Represents a specimen of Asarum Canadense in flower, of its natural size.

2. The calix with the stamens and pistil brought into view.

3. A stamen.

4. The pistil.

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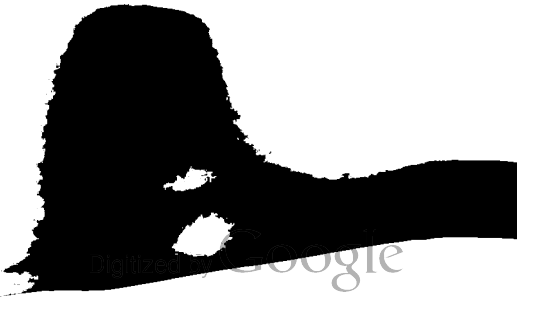
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Table 33.

Drawn from Nature by W. P. C. Barton

Tanner Vallance Kearny & Co. sc.

LAURUS BENZOIN.

(Spice-wood.)

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LAURUS BENZOIN.

SPICE-WOOD.

Allspice-bush. Fever-bush. Wild Allspice. Spice-berry. Fever-wood.

Germ. Benzoin Lorbeer. (*Willd.*)

Laurus benzoin. L. Sp. Pl. 530. Hort. Cliff. 154. Gron. Virg. 46. Roy. Ludgb. 226. Fabric. Helmst. 401. Du Roi harbk. 1. p. 354. Mill. Dict. n. 6. Willd. Arb. 165. Wangh. Amer. 87. Comm. Hort. 1. p. 189. t. 97. Pluk. Alm. 42. t. 139. f. 3. 4. Houttuyn. Lin. Pfl. Syst. 1. p. 534. Pursh, Fl. Am. Sep. i. p. 276. Willd. Sp. Pl. ii. p. 485. Mich. Fl. Am. Bor. i. p. 243. Bart. Comp. Fl. Ph. i. p. 192. Bartram's Travels 21. Baylies in Med. Pap. 47. Stokes's Bot. Mat. Med. vol. 2. p. 425. Cutler, 440. Hort. Kew. ii. 40. Barton's Collec. 3d. ed. par. 1. p. 20. par. 2. p. 52. Bart. Prod. Fl. Ph. 48. Nutt. Gen. Am. Pl. 1. 259. Big. Florula Bost. p. 97.

LAURUS.

Gen. Pl. ed. Schreb. n. 388.

Nat. Syst. Juss. *Lauri*. Classis VI. Ordo VI.

Nat. Ord. Lin. *Holeraceae.*

Artifi. Syst. Liu. Classis *Enneandria*. Ordo *Monogynia.*

Cal. 0. *Cor.* calycina, 6-partita. *Nectarium* glandulis tribus, bisetis, germen cingentibus. *Filamenta* interiora glandulifera. *Drupa* 1-sperma.

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LAURUS, T. L.* *Laurier.* Calix 6-partitus aut 6-fidus æqualis Staminum filamenta 12, 6 exteriora fertilia, 6 interiora exterioribus opposita quorum 3 fertilia basi 2-appendiculata aut 2-glandulosa et 3 alterna sterilia. Stigma capitatum. Folia plerumque integra, in paucis subopposita; flores in plurimis subpaniculati axillares aut terminales, in paucis solitarii aut glomerati axillares, quandoque sexubus abortivis dioïci. Calix quorumdam deciduus, cæterorum persistens cupulæformis integer aut lobatus. Drupa in plurimis Olivæ aut Ceraso similis, in *L. Perseâ* pyriformis magna. Ex Linnæo stamina quorumdam numero varia, 6-8 in *L. Sassafras*, 8-14 calice 4-fido in *L. Nobili, &c.* Confer in vivis. An genus dividendum? Juss. Gen. Plant. ed. 1789. p. 80.

Gen. Ch. *Cal.* none, unless the corolla be taken for such. *Cor.* in six deep, ovate, pointed, concave, erect, alternately external segments. Nectary consisting of three-pointed coloured tubercles, each terminating in two bristles, surrounding the germen. *Stam.* Filaments nine, shorter than the corolla, compressed, obtuse, three in each row; anthers attached to the edges of each filament, in the upper part, at each side. There are two globular glands, on a very short stalk, attached to every filament of the innermost row, near its base. *Pist.* Germen superior, nearly ovate; style simple, of equal thickness throughout, the length of the stamens; stigma obtuse, oblique. *Peric.* Drupa oval, pointed, of one cell, contained within the corolla. *Seed.* Nut ovate, pointed, with a kernel of the same shape. Ency.

LAURUS benzoin; ramis virgatis sub floratione aphyllis, foliis deciduis, cuneato-ovalibus, subtus albicantibus subpubescentibus, floribus glomerato-umbellatis, gemmis pedicellisque glabris.—Willd. and Pursh.

Leaves ovate, lanceolate, pubescent underneath; flowers in clustered umbels; buds and pedicels glabrous. Bart. Comp. Fl. Ph.

SYNONYMA.

LAURUS pseudo benzoin. Mich.

LAURUS æstivalis. Wangh.

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ARBOR Virginiana citreæ vel limonii folio, benzoinum fundens. Comm. Hort.
ARBOR Virginiana, pishaminis folio baccata benzoinum redolens. Pluk.
LAURUS, sub genus, *Euosmos* benzoin. Nutt.

PHARM.

LAURI benz. *Cortex et bacca.* The bark and berries.

THE term Laurus was the ancient name for the bay-tree, and it is now continued, not only to designate that tree, but is applied to a genus, comprising in common with it, a great number of fine aromatic shrubs and arborescent vegetables.

The laurus benzoin is one of these, and it is, without doubt, one of the finest aromatic shrubs of our country. It is polygamous, and rises to the height of from four to ten feet, and is very bushy. The stems are of an ash colour, often spotted with white dots. The flowers appear early in April or the last of March, long before the leaves put out. About the first week of April the leaves are about as far advanced as represented in Fig. 1, of the plate. They afterwards become the size of these represented in Figs. 2, and 3. They are cuneate-oboval, nearly pubescent beneath, and always paler than above.

The greenish-yellow flowers appear in small umbels, containing each from two to four flowers; the pedicels in these umbels are

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smooth. The calix is hexaphyllous; the leaflets oblong, thin, costate, with globular olearia. There are generally nine stamens, which have two of the three outer filaments simple, the third with a pedunculate gland at the base; the three at the base of the three other leaflets, with two pedunculate glands at the base; the three inner with glands at the base; pistil terete and attenuate. The flowers are succeeded by shining, oval, scarlet or crimson berries, which are ripe in the last of September. They possess an aromatic and grateful taste, and according to Dr. Drake, are used for medicinal purposes. The spice-wood inhabits low and moist places, and damp shady woods. It is partial to the borders of streams and rivulets, and in such places seems to thrive better than elsewhere. It is found from the most northerly state of our union to Florida; and is every where well-known by one or other of the vulgar names at the head of this chapter.

MEDICINAL PROPERTIES.

The medical virtues of spice-wood, are not inconsiderable. The bark is highly aromatic, stimulant and tonic, and is extensively used in the country, I have been informed, with much success, in intermittent fevers. It is given generally in decoction, but not unfrequently in powder. The late Dr. Barton informs us, that a watery infusion of the twigs has often been given to children with a view to

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dislodge worms, and that it is deemed an efficacious medicine in such cases. Of this I know nothing myself; but as the tea made by infusing the young branches is very pleasant, it would certainly be well to try it as a vermifuge. The Indians are said to esteem the spice-wood highly as a medicine; in what complaints they use it I have not been able satisfactorily to learn. Dr. Drake* mentions that the oil of the berries is used medicinally, and that it is stimulant. The dose of the infusion or decoction is about a pint in twenty-four hours. When the powdered bark is used, one drachm is given two or three times a day, in a glass of wine. I have known the flowers used for making tea, in the manner that sassafras blossoms are, and taken as a gentle refreshing stimulant.

Œconomical use.

The berries partake of the same spicy flavour which distinguishes the bark of the shrub; and we are informed, that during the late American war, the inhabitants of the United States used them dried and powdered as a substitute for allspice.†

* Picture of Cincinnati.

† Barton's Collections.

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TABLE XXXIII.

Fig. 1. Represents a flowering twig of the Laurus benzoin, with the leaves just coming out. The earliest flowers appear before there are any leaves on the shrub.

2. A specimen of the plant in fruit, culled on the tenth of September.

3. An outline of one of the largest leaves.

4. A group of flowers with the four bractes.

5. An expanded flower separated.

6. A seed.

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Fig 1

Fig. 2 Fig. 3. Fig. 4. Fig. 5 Fig. 6. Fig. 7

Drawn from Nature by W. P. C. Barton.

Tanner Vallance Evans & Co. Sc.

COPTIS TRIFOLIA.

(Gold - Thread.)

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COPTIS TRIFOLIA.

GOLD-THREAD.

Mouth-root.

Germ. Kleinste Christwurz. (*Willd.*)

Coptis trifolia. Lin. Sp. Pl. 784. Am. Acad. v. 2. p. 356. t. 4. f. 18. Mich. Fl. Boreali-Amer. 1. 325. Pursh, Fl. Am. Sep. ii. 390. Salisb. in Linn. Trans. viii. 305. Sp. Pl. Willd. ii. 1335. Kalm's Travels, iii. 379. Big. Med. Bot. 1. p. 64. Lepech. Iter. 1. 190. Œder. Fl. Dan. t. 566. Pallas, Iter. iii. 34. Big. Florula Bost. p. 134. Thach. Disp. 3d. ed. p. 235. Cutler, Amer. Acad. 1. 457. Dyck. Ed. Disp. 249.

COPTIS.

Salisbury.

Nat. Syst. Juss. *Ranunculaceae.*

Nat. Ord. Linn. *Multisiliquae.*

Art. Syst. Lin. Classis *Polyandria.* Ordo *Monogynia.*

Calix none. Petals five or six, caducous; nectaries five or six, cucullate; capsules from five to eight, pedicelled, beaked, many-seeded.

Coptis trifolia; leaves ternate, scape one-flowered.

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SYNONYMA.

ANEMONE Grönlandica. Fl. Dan. T. DLXVI.
HELLEBORUS trifolius. L. and others.
HELLEBORUS scapo unifloro. Am. Acad.
NIGELLA. Cutler.

PHARM.

COPTIS trifolia. *Radix.* The root.

DESCRIPTIO UBERIOR.

RADIX fibrosa, filiformis, repens, perennis. *Folia* radicalia ternata; foliolis sessilibus, obverse ovatis, extrorsum magis gibbis, argute serratis, rigidiusculis, glabris, venosis. *Petioli* filiformes, folio longiores. *Scapus* solitarius, filiformis, petiolis duplo longior, instructus bractea subovata. *Flos* solitarius, magnitudine floris Trientalis. *Corollae* petala quinque, ovata, basi in ungues attenuata, alba, striata. *Nectaria* petalis sæpius plura, lutea, limbo ovata, basi attenuata in cylindrum perforatum, petalis dimidio breviora. *Staminum* filamenta capillaria, alba, plurima, nectariis vix longiora. *Antherae* albæ, subrotundæ, erectæ. *Pistilli* germina quinque compressa. Styli filiformes, longitudine staminum, recurvi. Stigmata obtusa. *Pericarpium* capsulis quinque, acuminatis, compressis, coadunatis margine interiore. *Semina* plurima. Minima est hæc planta in suo genere, attamen spectabilis; inter Flores Sibiriæ speciosos et maxime singulares est, et jam quædam *Fumaria* bulbosis affinis, floribus condecorata in suo genere maximis. Amœn. Acad. p. 355.

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This pretty little evergreen plant, was referred by all botanists to the genus helleborus, until Mr. Salisbury separated it, on the characters which are given above. He associated it with another plant, having twice ternate leaves and green flowers, found by Mr. Menzies on the north-west coast of America. To the genus he gave the name of coptis, from κοπτω, to cut; and botanists now universally adopt his name and generic characters. The species which is the subject of this chapter, is a native of Siberia, Iceland, Labrador, and the northern parts of the United States.

The roots are perennial, about the size of bobbin, creeping, fascicled, and of a bright-yellow colour, which gives them the name of gold-thread. The stems are slender, round, and proceed from sheathing, ovate, sharp-pointed squamous sheaths. The leaves are ternate, coriaceous, smooth, and of a deep, shining evergreen, conspicuously and delicately veined. They are supported by long and short, round, slender petioles. The folioles are cuneate-obovate, with acuminate crenatures on the margin. The scapes are one-flowered, slender, terete, and garnished, with a mucronate scale-like bract at some distance below the flower. The corolla consists of from five to seven oblong, greenish-white, concave petals. There are five or six clavate fistulous nectaries, which are tinged with yellow at the top. The stamens are numerous, consisting of delicate white filaments and globose anthers. Germs oblong, flattened. The capsules are oblong, rostrate, and pedicellate, containing many seeds

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attached obliquely across their sides, to the inside. This little alpine evergreen is restricted to Canada and some of our most northerly states.* It is found in sphagnous swamps, and in cold situations most abundantly, flowering in the month of May.

MEDICINAL PROPERTIES.

The root of gold-thread is a pure and powerful bitter, devoid of any thing like astringency, and yielding its virtues readily to watery menstrua, though its bitterness is equally well given out to spirit. It is used in both ways, in the New England states, where, according to Dr. Thacher, it has long been a popular remedy for apthous affections of the mouth in children; and the doctor says, "experience has evinced its beneficial effects." He informs us, also, that it is considerably employed as a stomachic bitter in debility of the stomach and loss of appetite. Professor Bigelow states, that larger quantities of this article are sold in the druggists' shops of Boston, than of almost any other indigenous production; and that the demand arises from its reputed efficacy as a local application in apthous and other ulcerations of the mouth. He thinks, however, that its reputation in these cases is

* My specimens were brought to me from New England, in 1814, by a physician of this city, and a large quantity of the root, which had belonged to the late Professor Barton, fell into my hands after his death.

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wholly unmerited, and attributes the benefit which has attended its use, to other stimulating and astringent articles which have been combined with it. I have had no further experience with this plant, than simply in a few trials to ascertain its tonic and stomachic virtues; and in these, the results fully confirmed the promise which the sensible properties of the root held out. It is one of the purest bitters I am acquainted with, and though not so intense as quassia, is somewhat similar to it. It may be safely recommended for its tonic and bitter powers.

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TABLE XXXIV.

Fig. 1. Coptis trifolia, of its natural size, in flower, and with the last year's fruit on.

2. A petal.
3. A pistil.
4. A nectary.
5. Stamen.
6. Capsule opened, shewing the seeds.

All greatly magnified.

7. The entire capsule, (still more magnified.)

N. B. The organs of the plant as above, viz. Figs. 3, 4, and 5, are copied from the Fl. Dan., my specimens not being sufficient to enable me to draw them from the American plant.

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Drawn from Nature by W. P. C. Barton

Tanner, Vallance, Kearns & Co. Sc.

FRASERA WALTERI.

(American Columbo.)

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FRASERA WALTERI.

AMERICAN COLUMBO. COLUMBO.

Columbia. Indian Lettuce. Columbo-root. Marietta Columbo. Wild Columbo.

FRASERA Walteri. Walter, Fl. Car. 88. Mich. Fl. Bor. Am. 1. p. 96. Pursh, Fl. Am. Sep. 1. p. 101. Drake's Pict. Cin. p. 85. Nutt. Gen. Am. Pl. 1. p. 102. Bart. Collec. ed. 3d. par. 2. p. 16. Bart. Fl. Virg. 49. Gmelin, Syst. Nat. ii. p. 215. 256. Persoon, Syn. Plant. 1. p. 137. Bartram's Travels, p. 42. Med. Rep. New York, vol. 15. Elliot. Sket. vol. 1. p. 205.

FRASERA.

Walter. Michaux.

Nat. Syst. Juss. *Gentianae.*

Artific. Syst. Lin. Classis *Tetrandria.* Ordo *Monogynia.*

Cal. profunde 4-partitus, patens, laciniis lanceolatis, acutis. *Cor.* calyce multo major, profundissime 4-partita, patens: laciniis ovalibus, ob utrumque marginem versus summitatem incumbenti-inflexum quasi acuminatis. Glandula conspicua,

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orbiculata, convexo-protuberans et eleganter barbata in parte laciniarum media. *Stam.* 4, corolla breviora eique alterna, filamenta subulata; antheræ subovato-oblongæ, inferne subsemibifidæ, demum reflexæ. *Pist.* ovarium oblongo-ovatum, compressum, sensim desinens in stylum ipsius circiter longitudine: stigmata 2, crassa, glandulosa, divergentia. *Caps.* majuscula, ovalis, valde compressa, ambitu submarginata, subcartilaginea, rudimento styli mucronata; 1-locularis, margine 2-valvis. *Semina* pauca, (8-12) elliptica, planocompressa, membranaceo-marginata; ad latera utriusque suturæ immediate longitudinaliter per marginem alterum ita adnexa, ut sibi invicem imbricatim incumbant.

Obs. Genus gentianeum; fructu fere MENYANTHIS *Nymphoidis.*

Mich. Flor. Boreali-Amer. p. 96.

Calix deeply 4-parted. *Corolla* 4-parted, spreading; segments oval, with a bearded orbicular gland in the middle of each. *Capsule* compressed, partly marginated, 1-celled. *Seeds* few, (8 to 12) imbricated, large, elliptic, with a membranaceous margin.

SYNONYMA.

FRASERA Carolinensis. Walter.
FRASERA officinalis. Bart. Fl. Virg.
FRASERA verticillata. Drake, and others.

PHARM.

FRASERÆ Walteri. *Radix.* The root.

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The superb plant which is the subject of this chapter, was dedicated by Walter to Mr. John Fraser,* and is the only species of the genus known at present. The root is biennial, large, tuberous and fleshy, and of a yellow colour. The stalk is strong, succulent, and fleshy, from eight to ten feet high, nearly square and furrowed, sending of whorls of large, deep-green glabrous leaves, at intervals of six or eight inches, to about half its length, and smaller leaves and flowering branches in whorls to the top. "The lower leaves are oblong, lanceolate, entire, membranous, delicately veined, from six to eight inches long, and from two to three wide; upper leaves narrow, lanceolate, small."†

The leaves according to Pursh, Mr. Elliot, and the late Dr. Barton,‡ are occasionally opposite. They generally grow to the number of four or eight together, are lanceolate or sometimes oblong, ovate, and acute. The flowers are aggregated in clusters; the segments of the corolla are lanceolate, greenish-yellow, or cream-white, finely speckled with purple, and having a pubescent or ciliated oval gland in the middle of each petal, which is green internally, and brown on the edges. Those glands are conspicuous on both sides of the petals, as represented in the front and back views of the

* An indefatigable nursery and seedsman, to whose exertions the gardens of England, and particularly of London, are indebted for many rare American plants.

† Elliot. ‡ Flora Virg.

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two expanded flowers in the plate. The peduncles are from one to three inches long, one-flowered; calacine segments lanceolate, shorter than the corolla. Filaments four, shorter than the corolla, attached to the base, and alternating with the segments of the corolla. Anthers oblong, incumbent. Germ superior, ovate, tapering above. Style only the attenuated germ, bifid. Stigmas two, diverging. The capsules are compressed, somewhat margined, one-celled, and contain about eight or twelve diaphanous flat seeds, with a membranaceous margin, and are imbricately attached to the attenuate margins of the capsule. These capsules (in the dried specimens) are of the colour represented in the plate, (Fig. 2.) The habitat of this plant is variously described by different botanists. Michaux, it appears, has observed it in wet or swampy places "in Paludosis Carolinæ." Pursh says it is found "in the swamps of Lower Carolina, and on the borders of the lakes of Pennsylvania and New York." Mr. Nuttall says, "in the *dry and open woods* of western Pennsylvania, and New York, in certain localities it is abundant:" and Dr. William Short, in a letter* to me, says it grows in the barrens or prairies of

* The following is an extract from the letter of this gentleman, which will, I am sure, be interesting in this place. "The flowers of the Frasera are by no means showy at a distance, but exquisitely delicate upon minute examination.

"The Columbo, for so it is universally denominated here, grows abundantly in the country in which I reside, particularly those portions of it called barrens or prairies, where, from the annual passage of fires over them, the forest growth is stunted and sparse, but affording in the summer, rank and luxuriant growths of annual plants, and

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Kentucky. The late Dr. Barton observed it in 1797, growing in great abundance, on the west side of the Jenisseia river, in the state of New York. It is said to be common in some parts of Upper Canada; but the states of Kentucky, and Tennessee, yield it in profusion. From the abundance which grows in the neighbourhood of Marietta, in Ohio, it has received the name of Marietta Columbo. According to Walter, Michaux, Mr. William Bartram, and Mr. Elliot, it grows in Carolina and Georgia. The latter gentleman mentions that it has been found in Fairfield district, and in Abbeville.

The credit of the discovery of this fine and interesting plant, seems to be due to Mr. William Bartram,* of Kingsess gardens. He

some shrubs. Here among the hazle, and different species of Sumac, the Frasera rears its conical head in all its grandeur, frequently attaining the height of eight and ten feet—in other parts of the country, not so particularly congenial to its growth, I have seen it of much smaller size."

* Mr. Bartram is still living, though aged and infirm. He resides at Kingsess gardens, where he hallows by his venerable appearance, and graces by his instructive converse and simple manners, the seat founded and supported by his family. He is one of the most unambitious lovers of nature I have ever seen. With a mind keen, penetrating and vivacious, he applied himself in early life, to the study of botany, and indeed natural history generally; but more particularly devoted himself to the study of the manners and habits of our birds, and other interesting points of inquiry connected with their history and migrations. In his travels into Florida, he relates these in all the fervour of a real lover of nature's works, and with such innocent enthusiasm, that we cannot fail to love and venerate the author. He ranks as a botanist in a very high grade. All his observations have been communicated to others, for the good of

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describes it under the name of Indian Lettuce.* The time of flowering of the columbo, is in May, June, and July.

From a variation in the number of parts of the flower and other circumstances, it is asserted by the editor of the article Frasera, in Rees's Encyclopædia, to be the Swertia difformis, of Linnæus; and Pursh remarks that the genus is so nearly allied to Swertia, that without seeing the fruit, the plant might readily be mistaken for a species of that genus. It is said by Dr. Barton,† that "flowers with five stamens are *very frequently* met with, and six stamens occasionally occur." In the specimens in my possession, for which I am indebted to Dr. Drake, of Cincinnati, the stamens are uniformly four.

CHEMICAL PROPERTIES.

The following is an account of the experiments made with the root by Dr. Daniel Drake, of Cincinnati, with a view to ascertain the comparative qualities of the Frasera, and the officinal columbo. "This root, (F. Walteri) gives out its bitterness both to aqueous and alcoholic menstrua, but more fully to the latter; the reverse of which is the

science; and to him, the late Professor Barton, Dr. Muhlenberg, Wilson, the ornithologist, and many others, have been largely indebted for much useful information.

*See his Travels, p. 42. †Fl. Virg.

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case with the columbo. Its spirituous tincture suffers decomposition upon the addition of water, indicating that it contains resin, which the columbo does not, at least in any considerable quantity; and the addition of a decoction or tincture of galls to its watery or spirituous infusion, causes no precipitate of cinchonin, one of the chief constituents of columbo."* (For further chemical results, see Appendix.)

MEDICINAL PROPERTIES.

The root of Frasera is a pure, powerful and excellent bitter, destitute of aroma. It is said to be not at all inferior to the gentian or columbo of the shops, and is equal to any of the common tonic bitters used in medicine. In its recent state it is said to possess considerable emetic and cathartic powers.† I have been informed that it is extensively used in the western states, and that it supports its reputation wherever it is generally known. I have never used the plant in any way, and consequently can say nothing from experience on the subject. The late Professor Barton shewed me some slices of the dried root several years ago, but the quantity he possessed was not sufficient to enable him to make any extensive trials with it. It may be used in powder, decoction, infusion, and tincture.

* Picture of Cincinnati. † Ibid.

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TABLE XXXV.

Fig. 1. Represents a whorl of leaves, and a flowering branch of the Frasera Walteri.

2. The capsules.

3. A seed.

(All the size of nature.)

N. B. The drawing from which the plate was engraved, was made from good dried specimens, which I received from Dr. Drake; the colouring of the flowers is imitated from a sketch made in a letter, by Dr. William Short, of Kentucky, in the faithfulness of whose pencil I have much reliance. The uncoloured whorl of leaves is an exact copy of Dr. Short's outline sketch, made with a pen.

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Drawn from Nature by W. P. C. Barton

Tanner, Vollance, Kearny & Co. sc.

POLYGALA SENEKA.

(Seneka Snake-root.)

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POLYGALA SENEKA.

SENEKA SNAKE-ROOT.

Rattlesnake-root. Senega Rattlesnake-root. Officinal Milk-wort, or Rattlesnake-root, in England.

Germ. Giftwiderstchende Polygala. (Willd.) Senegawurz. Klapper-schlangenwurz.

French. Polygale de Virginie; Senéka; Racine de serpent à sonnettes.

POLYGALA seneka. L. Sp. Pl. 990. Bot. Mag. t. 1051. Mill. Ph. Dict. ed. vii. t. 5. Repr. in ed. viii. at Art. Polygala. Hort. Kew. iii. 6. Walt. 178. Wood. Med. Bot. 253. t. 93. Thornt. 629. Gron. Virg. ed. 1. 80. L. Am. ii. 139. t. 2. at p. 141. f. 2. Pharm. Lond. Archer, account from, in Phys. Jour. i. 83. 106. Chir. Rev. vi. 194, and Underw. 1. 336. Bang. in Act. Haun. 1. 20. 111, 112. 257. Callisen, ib. 73. Chalm. ii. 115. Darw. ii. 392, and 398. Bree, 258. Cull. ii. 532. Lem. Duham. and Juss. account from, in Med. Ess. vi. 377. Spielm. 581. Geoffr. ii. 137. Haen. i. 357. Hill. 630. Lew. ii. 240. Pharm. Lond. Noviss. Mackenzie, in Med. Obs. ii. 288. Monro, iii. 257. Perciv. T. in Med. Jour. iv. 67. Repr. in Perciv. T. ii. 395. Und. 1. 338. Bang. in Act. Haun. 1. 239. 254, 255; ii. 41. 51. Berg. 595. Carth. ii. 435. Linn. 200. Murr. ii. 436. Ploucq. Bibl. 1. 661. Schoepf, 110. Vog. 226. Pharm. Edin. Stoke. Bot. Mat. Med. iii. 500. Bart. Collec. 3d. ed. par. 1. p.

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26. 32. 34. 56. par. 2. p. 37. Cassel, account from, in Med. Rev. iv. 44. Lew. Disp. by Dunc. 284. Massie, account from, in Chir. Rev. xiv. 63. Murr. J. i. 331; ii. 46. Pears. R. i. 152. 230. 256. Arch. account from, in Ann. Med. iv. 511. and Med. Rev. iii. 426. Scot. J. ib. 313. Lew. Juss. and Bouvart, in Ac. Soc. abr. by Souther. iii. 297. Tenant. Disp. of Virginia, and account from, in Med. Ess. vi. 376. Graing. 66. Rush, v. 176. Dyck. Ed. Disp. p. 348. Coxe's Disp. 3d. ed. 500. Thach. Disp. 3d. ed. p. 319. Barton's Cull. ii. 370. 390. 411. Muhl. Cat. 66. Mich. Fl. Boreali-Am. ii. 53. Pursh, Fl. Am. Sep. ii. 464. Nutt. Gen. Am. Pl. ii. 87. Willd. Sp. Pl. 3. p. 894. Raj. Suppl. 640. Houttuyn. Lin. Pfl. Syst. 8. p. 490. Drake's Pict. Cin. p. 87. Chapman's Element. Ther. and Mat. Med. vol. 1. p. 270. Pharm. Mass. Med. Soc. 26.

POLYGALA.

Gen. Pl. ed. Schreb. n. 1154.

Nat. Syst. Juss. *Pediculares.* Classis VIII. Ordo II.

Nat. Ord. Lin. *Lomentaceae.*

Artific. Syst. Lin. Classis *Diadelphia.* Ordo *Octandria.*

Cal. 5-phyllus; foliolis duobus alæformibus, coloratis. Legumen obcordatum, biloculare.

Polygala, T. L.* *Calix* 5-partitus, laciniis 2-longè majoribus alæformibus sæpè coloratis. *Corolla* convoluta in tubum suprà fissum, limbo 2-labiatum, labio superiore 2-partito fisso, inferiore concavo subtùs barbato aut imberbi, intùs obtegente stamina 8 in duas fasces collecta; antheræ 1-loculares. *Stigma* subbifidum. *Capsula* compressa obcordata. *Herbae* aut frutices; folia plerumque alterna; flores 1-3-bracteolati, alterni, laxè aut densè spicati, terminales. Fructus *P. spinosae* baccatus et ramuli pungentes. Calix *P. Heisteriae* 5-partitus æqualis, corolla non fissa, germen 4-corne.

Juss. Gen. Plant. ed. 1789. p. 99.

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Gen. Ch. *Cal.* Perianth inferior, permanent, small, five unequal, ovate, acute leaves: two of them below the corolla; one above it; and two very large, flat, coloured, like wings, at the sides. *Cor.* imperfectly papilionaceous. Standard tubular, nearly cylindrical, short, its mouth reflexed, small, cloven. Keel concave, compressed, swelling towards the extremity, near to which are attached, for the most part, two feathery three-cleft appendages. *Stam.* Filaments eight, in two sets, both united, contained within the keel; anthers eight, simple. *Pist.* Germen oblong, superior; style simple, erect; stigma terminal, tumid, cloven. *Peric.* Capsule turbinate, somewhat heart-shaped, compressed, sharp-edged, with two cells and two valves, bursting on each side at the edges, the partition contrary to the valves. *Seeds* solitary, ovate, with a glandular scar. Ency.

Polygala Seneka; caulibus erectis simplicissimis foliosis, foliis alternis lanceolatis, spica terminali filiformi, floribus alternis. Willd. and Pursh.

Stems erect, quite simple, leafy; leaves alternate, lanceolate; spike terminal, slender; flowers alternate.

SYNONYMA.

Plantula Marilandica, caule non ramoso, &c. Raj.

Polygala floribus imberbis spicatis, &c. Gron.

Polygala Virginiana. Lem. Juss. and Bouvart.

Seneka, of many medical writers, as quoted in the list of references.

Rattlesnake root of Tennant.

Senega Rattlesnake-root of Graing.

PHARM.

Off. The root.

Radix Polygalæ Senegæ. Edin.

Senegæ *Radix.* Lond.

Senekæ *Radix.* Dub.

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This humble plant is deservedly esteemed one of the first medicines in point of importance, native to our country. The genus to which it belongs is very extensive, containing more than one hundred species.* It is an ancient name, compounded of two Greek words, πολυς, *much*, and γαλα, *milk*, in allusion to the reputation of the effect of the plant on cattle that feed on it. But at this time it is not known what is the precise plant supposed to be endued with such virtues. The root of Polygala seneka is irregularly shaped, contorted, gibbous, and ligneous; covered with a thick dull yellowish or greyish bark. Several stems arise from one root. They are leafy, slender, simple, erect, terete, of a dull brown purple colour below, and greenish towards the top; and are from ten to fourteen inches high. The leaves are alternate, lanceolate, acuminate, somewhat undulate, smooth, and supported on short petioles. Towards the base they are smaller, and inclined to ovate. The flowers are borne alternately on a slender terminal spike. They are papilionaceous, and though generally white, are often tinged with dull purple, and sometimes faint yellow. The calix consists of three short teeth, two inferior, and one superior, in relation to the corolla. Michaux and Pursh describe two distinct varieties, one of which they call α. *albida*; having lanceolate or oval leaves, with a somewhat crowded spike of

* "Europe affords six, South and Tropical America as far as Buenos Ayres twenty-four, Barbary and the Levant four, Siberia two, Guinea two, the Cape of Good Hope produces twenty-four, many of them ornamental shrubs, India and China thirteen, one in Japan, one in Arabia Felix, and several others of uncertain locality." *Nutt.*

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white sub-sessile flowers. The other β. *rosea*, which is either smoothish or pubescent; having linear leaves, a loose alternate-flowered spike, and rose-coloured flowers. α, grows from Canada throughout the Allegheny mountains. β. in Carolina and Georgia. The plant is generally found on the sides of hills and in dry woods. It is abundant in Kentucky, Ohio, and Tennessee, and flowers from June to August. It was cultivated in England as early as 1759, by Philip Miller, and is still found at Kew Garden and other botanic grounds.

CHEMICAL PROPERTIES.

To the taste, the root is bitter, pungent, subtle and peculiar; but it has little or no smell. Both aqueous, and spirituous menstrua extract its virtue; but the alcoholic tincture obtains them most completely. The powder in substance, however, is generally believed to be more active than either the tincture or decoction. The latter when first taken are not peculiarly unpleasant, but speedily stimulate the mouth and fauces, and produce a free discharge from the salivary glands. A tincture of the root in rectified spirit, was formerly in great repute; and it was said to be more active and permanent in its effects. It is now disused. It has been said, and perhaps not without foundation, that the bark of the root contains most of the active power of the plant; and that the ligneous portion is comparatively inert. To this opinion Dr. Cullen inclines, though at the same time

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he says the whole root has commonly been used without regard to this difference in the power of its different parts. Murray relates the results of analyses carefully made of the root of this plant, by those who have written on it. But from them we learn nothing remarkable, except that the aqueous is more abundant than the resinous extract; though the ligneous part of the root yields sufficiently, a resin, a mucilage, &c.

MEDICINAL PROPERTIES.

The Seneka snake-root possesses various medicinal virtues. It is stimulant, diuretic, sialagogue, expectorant, purgative, emetic and sudorific; and of late years it is esteemed a valuable emenagogue. Dr. Cullen has treated of it, both under the head of cathartics, and under that of diuretics. Dr. Barton, in his edition of Cullen, has assigned it a place under the head of emenagogues, and Dr. Chapman, under the head of stimulating diuretics, as well as under the head of expectorants and emenagogues. Its purgative effect was regarded by Dr. Cullen as its true characteristic; and under the opinion that it was most salutary, when it produced copious evacuations, he arranged it under the head of cathartics. From this opinion many respectable physicians dissent.

It is now more than eighty years, (1735) since Dr. John Tennant invited the attention of physicians to this medicine, as an antidote

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against the bite of the rattle-snake. In an extensive intercourse with the Indian nations of our country, it appears that, induced by the offer of alluring rewards, he obtained from the Senagaroos, a disclosure of their secret remedy for this accident, or the disease arising in consequence of it. According to their practice, it was applied externally and internally, either chewed and applied to the wound, or in the form of cataplasm. Dr. Tennant himself saw, or thought he saw, beneficial effects from the root of this medicine in cases of this kind. He inferred from the similarity of those symptoms which supervened on the poison of the rattlesnake, to those of pleurisy, that the medicine would prove beneficial in that disease. He accordingly recommended it, and it has been much used, and with repeated good effect, in peripneumonic cases. The most prominent of the physicians who have borne testimony in favour of its powers in those cases, are Bouvart, De Jussieu, Lemery, and Duhamel. Sir Francis Millman, Dr. Percival, and others, have spoken highly of it as a diuretic in dropsies. Of late years the Seneka has been much used in croup, and numerous well attested instances of its beneficial effects are to be found in various publications. The credit of discovering the efficacy of the root in this complaint, is due to Dr. Archer,* of Maryland, who, confessedly, was the first person that proposed its use in that distressing malady. The late Dr. Barton, on this subject says "from my own experience I am led to repose more confidence

* See Medical Repository, New York, vol. ii. n. 1. art. vii.

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in the use of this medicine (in croup) than in any other."* The salivating property of seneka has been long known, and the instances of this effect being succeeded by its use, are numerous and authentic. Its expectorant power has caused it to be used in cases of typhus with pneumonic symptoms, and with considerable success, greatly promoting, by stimulating the lungs, the expectoration of mucus. "Dr. Brandreth, of Liverpool, has derived great benefit in some cases of lethargy, from an extract of seneka combined with carbonate of ammonia."† That it acts, occasionally, with much vigour as a sudorific, seems beyond disputation; but I cannot mention without some apprehension of raising a smile, the marvellous effect said to have been produced on the blacks who have used it. Dr. Barton mentions that he "has been assured it has been known to remove portions of the mucous body or rete mucosum from their skin."‡ According to the doctor, the Indians use a decoction of this root in syphilis, and in malignant sore-throat. We are told by Dr. Woodville, that "the repute which this root obtained in peripneumonic affections, induced some to employ it in other inflammatory disorders, in which it proved serviceable, particularly in rheumatism."§ The notion that this

* Collections.

† Edinburgh Disp. by Dyck. p. 348.

‡ Collections.

§ Med. Bot. vol. 2. p. 255. Com. Novic. 1741. p. 363. Sarcone Geschichte de Kraukh. in Neapel, tom. 1. p. 108. 169. 173. 199.

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root possesses the power of rendering the siziness of the blood more fluid, has been satisfactorily refuted by De Haen;* and does really seem to be entitled to no serious attention.

From this summary of its virtues and effects, it will be seen that the seneka is a medicine of no common powers; but on adverting to what is manifestly the most prominent effect of its operation, its stimulant power, we cannot but be struck with the impropriety of administering it in the first stages of inflammatory disorders, such as pleurisy and croup; for the latter cannot be considered purely spasmodic. In these cases, unless the lancet has been freely used, the seneka cannot, I apprehend, be safely given. It is a stimulant of a very searching nature, influencing besides the circulation of the blood, the lymphatic and secretory organs in a powerful and peculiar manner. It does not really appear that it has ever cured true pleurisy; neither has the lancet been omitted in most of the cases of cynanche trachealis, in which it has proved serviceable: and it may be questioned, whether Dr. Archer has insisted enough on the propriety of blood-letting, prior to the extensive use of the seneka in croup. He recommends a strong decoction of the root in this disease, which acts as an emetic, cathartic, and expectorant. The decoction is made from half an ounce of the bruised or coarsely powdered root, and eight ounces of water, boiled over a slow fire down to half the quantity. Of this decoction he gives a tea-spoonful every half hour, or every

* Ratio Medendi, par. 4. p. 252.

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hour, according as the urgency of the symptoms may indicate; and at intervals, a few drops to keep up the stimulus, until the medicine acts on the stomach or bowels. The medicine is to be repeated in diminished quantities, so as to keep up a constant stimulus in the throat and mouth. This practice has been imitated by many physicians with success.*

*The following is Dr. Barton's account of his use of this medicine in croup: "Since the beginning of the year 1798, I have employed a strong decoction of this plant in several cases of cynanche trachealis, or hives. I am persuaded, that the seneka is a very important medicine in the treatment of this common, and too frequently unmanageable, disease; and praise, in my opinion, is due to Dr. Archer, for his important discovery; for such I cannot but deem it. That the seneka is a specific, or certain remedy, for the cure of the croup, I do not believe: but, from my own experience, I am led to repose more confidence in the use of this medicine than in any other. I have made use of a very strong or saturated decoction of the root. I have always given it in large quantities. It appears to be chiefly beneficial, when it occasions an expectoration of mucus, and when it proves emetic. It is also very useful by virtue of its purgative quality. But I have known it to occasion very plentiful stools, without benefiting the patient. Indeed, in the exhibition of the seneka, I would rather wish to guard against *large* purging. I have sometime treated my patients *almost* entirely with the seneka. Even in such cases, I have perceived most unequivocal good effects from it. But I have, more generally, given, along with the seneka, calomel, and sometimes calomel combined with ipecacuanha. I have not omitted the employment of the lancet, (though this, in many cases of croup, is not absolutely necessary,) and the use of blisters, or sinapisms, applied near to the seat of the disease. I am happy to close this short notice by observing, that several respectable physicians in Philadelphia inform me, that they have used the seneka, with much advantage, in the disease in question."

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It is a common practice to combine calomel with the seneka, and also Virginian snake-root. In union with the latter, I have seen much good effect from it in typhoid pneumonia. When combined with calomel, it should be reduced to powder, and made into boluses, of which the dose is, for an adult, about a scruple three or four times a day. The dose of the powdered root alone, is from thirty grains to two scruples; but as in this form it is apt to operate as a purgative, and sometimes as an emetic, it is preferred to give the decoction, which may be made by boiling an ounce of the root in a pound and an half of water, till it is reduced to a pound; and of this a table-spoonful is a dose, frequently repeated.

The discovery of the valuable emenagogue virtues of the seneka, originated many years ago, with my friend Dr. Hartshorne, an eminent surgeon of this city, whose experience, and habits of searching observation in the practice of his profession, warrant me in quoting him as authority of the highest value. From him I have recently learned the following facts: that he still continues to prescribe the seneka in amenorrhœa, with unimpaired confidence, resulting from much experience with its peculiar, (perhaps specific) operation in this disease. He has prescribed it many times, when the suppression of the catamenia was of very long standing, but in these cases its efficacy seems less conspicuous than in more recent cases. His usual mode of administering it, is in saturated decoction, to the extent of a pint in twenty-four hours, commencing about two weeks previous to the

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expected menstrual period; and he has found it most efficacious when the system was prepared for its operation, during the two preceding weeks, by the administration of calomel, so as to produce a gentle ptyalism. The doctor has also used the seneka in these cases in substance, but prefers the saturated decoction. When the cases are of very long standing, one, two, or three years, he is in the habit of reiterating the practice as above detailed, with this exception, that he does not continue the use of the seneka during the whole period, because of the disgust it is under such circumstances apt to produce, by its nauseating tendency. At the instance of Dr. Hartshorne, this article was tried in amenorrhœa, some years ago, by Professor Chapman, and he speaks in the highest terms* of his success.†

*See his Elements of Therapeutics and Materia Medica, vol. ii. article Polygala seneka, under the head of Emenagogues.

† It is much to be regretted, that the credit of this important discovery of the emenagogue powers of the seneka, has not been given, by either Dr. Thacher,‡ or Dr. Coxe, who copies and quotes the doctor, to him, to whom alone it is due; and it is but just to remark, that though in the publications of Drs. Thacher and Coxe,‖ the name of Dr. Chapman is alone mentioned in relation to this subject, yet the latter gentleman has, in two publications§ on the seneka, not only acknowledged Dr. Hartshorne as first pointing out this peculiar effect of the seneka, but gives him all due credit for the discovery. These observations are made with a firm belief, that Dr. Hartshorne's name is inadvertently omitted in the publications of Thacher and Coxe; and with a design, by *rendering unto Caesar the things which are Caesar's*, to affix the merit due on this occasion, to an unassuming man of great merit, whose modesty would never suffer him to speak or write himself on the subject of any claim, wrested from him by inadvertence or design.

‡ Dispensatory, 3d. ed. ‖ Dispensatory, 3d. ed.

§ Eclectic Repertory. Elements of Thera. and Materia Medica, 1818. 2d. vol.

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I may here not impertinently remark, that in the treatment of a recent case* of hydrophobia, under my care, I prescribed the Polygala seneka in pills, of the pulverized root, and in powders, under the impression, that in this fatal and mysterious malady, the prominent feature of which is the distressing affection of the pharynx and larynx, and an extreme difficulty of expectorating the great quantity of viscid mucous with which the trachea seems choaked up—it might prove serviceable. I was led to this practice from the analogy of its effects in croup, as detailed by Dr. Archer: and though in the short continuance of this disease, which ran its terrific and fatal course in less than two entire days, I had but little opportunity of coming to any decided conclusion on the effect of the seneka; still I ought to remark, that it promoted expectoration very freely. It was administered but for three hours, and not to any great extent. In a disease so direful in its symptoms and so universally fatal in its effect, it is a matter of no inconsiderable importance to seek alleviating remedies. I would therefore propose the free use of the seneka in cases of hydrophobia, with a view to its specific or remarkable operation on the apparent seat of this malady, the lungs, trachea and larynx; and should another case ever occur in my practice, I shall lose no time in the administration of a remedy so powerfully affecting these organs.

* Of this case, which occurred between the 28th and 30th of the present month, (November,) and which supervened upon the bite of a rabid dog, I have drawn up a detailed account, which is to be soon published in one of our periodical journals.

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TABLE XXXVI.

Fig. 1. Represents a plant of the Polygala seneka in flower.

2. The root.

3. The calix.

4, 5, 6, 7, and 8. The different parts of the papilionaceous corolla.

(All the size of nature.)

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Tanner, Vallance, Kearney & Co. sc.

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EUPATORIUM PERFOLIATUM.

BONE-SET. THOROUGH-WORT.

Thorough-stem. Vegetable Antimony. Cross-wort. Indian Sage. Thorough-wax. "Ague-weed," of the Indians.

Germ. Durchwachsener Wasserdost. (*Willd.*)

EUPATORIUM perfoliatum. L. Sp. Pl. 1174. Hort. Cliff. 396. Hort. Ups. 253. Roy. Lugdb. 156. Gron. Virg. 119. Cold. Noveb. 181. Mill. Dict. n. 8. Pluk. Alm. 140. t. 87. f. 6. Raj. Suppl. 189. Morris. Hist. iii. p. 97. Houttuyn. Lin. Pfl. Syst. iv. p. 243. Willd. Sp. Pl. iii. p. 1761. Mich. Fl. Am. Boreal. ii. p. 99. Pursh, Fl. Am. Sep. ii. p. 516. Hort. Kew. iii. 160. Cutler, 478. Stokes's Bot. Mat. Med. iv. p. 171. Guthrie, in Ann. Med. iii. 403. Schoepf, Mat. Med. Am. 121. Bart. Collections, 3d. ed. part i. p. 28. 55. part ii. p. 22. Anderson, Inaug. Diss. (New York, 1813.) Thach. Disp. 3d. ed. p. 220. Coxe's Disp. ed. 3d. p. 317. Dyck. Ed. Disp. p. 264. 415. Chapman's Element. Mat. Med. and Thera. vol. i. p. 343. ii. p. 415. Bart. Prod. Fl. Ph. 77. Comp. Fl. Ph. ii. p. 101. Big. Florula Bost. p. 190. Muhl. Cat. Pl. Am. Sep. p. 74. Pursh, in Medical and Physical Journal. Big. Am. Med. Bot. p. 33. Bart. Med. and Phys. Jour. Nutt. Gen. Am. Pl. vol. ii. p. 135.

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EUPATORIUM.

Gen. Pl. 1272.

Nat. Syst. Juss. *Corymbiferae.*

Nat. Ord. Lin. *Compositae discoideae.*

Artific. Syst. Lin. Classis *Syngenesia.* Ordo *Polygamia aequalis.*

EUPATORIUM, T. L.* Eupatoire. Flores flosculosi. Calix imbricatus inæqualis oblongus cylindricus pauciflorus. Pappus plumosus. Caulis frutescens aut herbaceus, interdùm scandens; folia in plurimis opposita, in paucis verticillata aut alterna; flores sæpè corymbosi terminales aut axillares, purpurascentes. Species quædam Linnæanæ calice polyphyllo simplici non imbricato, Cacaliæ affiniores ex D. Lamark; quædam pappo piloso. An congener *Critonia* Brown. Jam. t. 34. f. 1., cui ex Autore calix 4-florus, pappus ramosus, cætera similia?

Juss. Gen. Pl. ed. 1789. p. 178.

Gen. Ch. *Common Calix* oblong, imbricated; scales linear-lanceolate, erect, unequal, unarmed. *Cor.* Compound, uniform, discoid; florets all uniform, perfect, fertile, monopetalous, funnel-shaped, with a regular 5-cleft spreading border. *Stam.* Filaments five, capillary, very short; anthers united into a cylindrical tube. *Pist.* Germen minute; style thread-shaped, very long, cloven, slender, bluntish, straight. *Peric.* None, except the permanent calix. *Seeds* solitary, oblong, angular; down long, rough or feathery. *Recep.* naked.

Ess. Ch. Receptacle naked. Down rough or feathery. Calix imbricated, oblong. Style prominent, cloven half way down, divaricated. Ency.

Recep. Nudum. *Pappus* pilosus. *Cal.* imbricatus, cylindricus. *Stylus* semibifidus, longus.

EUPATORIUM perfoliatum; foliis connato-perfoliatis oblongis sursum angustatis serratis, rugosis, subtus tomentosis, caule villoso.—*Willd.* and *Pursh.*

Leaves connate-perfoliate, oblong, narrow above, serrate, rough, tomentose beneath; stem villous.

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SYNONYMA.

EUPATORIUM Virginianum, Salviæ foliis, &c. Pluk.
EUPATORIUM foliis connatis tomentosis. Cutler.
EUPATORIUM connatum. Mich.

PHARM.

EUPAT. perfol. Herba et flores—the flowers and leaves.

THE subject of this article is wholly destitute of any thing like comliness, but is a very general favourite and will probably always be highly esteemed, for its medicinal powers. The plant which gave name to the very extensive genus of which the Bone-set is a species, is the ευπατωριον, of Dioscorides, from Mithridates, surnamed Eupator, who is reputed to have brought the original plant into use as an antidote against poisons. Most of the species, of which Willdenow enumerates seventy-one, are indigenous to America. Pursh describes twenty-seven as natives of North America; and others will be found extending beyond the tropics as far as Peru and Paraguay. Those indigenous to our states, are all plain looking plants, except the E. cœlestinum, the beautiful blue flowers of which have given rise to the appropriate specific name. Many of them, however, compensate in stature for what they want in beauty;

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several of the red-flowered species being from five to seven feet high. They decorate our autumnal landscapes, by the profusion of their red and white flowers, and by the abundance in which they are every where met with.

The present is perhaps one of the commonest, if not the most common, of all the species inhabiting our country; being found in meadows, damp woods, watery thickets, and on the margins of brooks, rivulets and other small waters, in the greatest profusion—covering indeed occasionally, whole acres of ground. It is peculiar to North America, and is easily distinguished from all the other species, to many of which it is nearly allied by its general habit and its flowers, by the remarkable structure of its leaves, which decussate each other in such a manner as to have given rise to the appellation of cross-wort. It may also be readily known by its blistered or rugose leaves, which have imposed on it the epithet of Indian Sage. But another discriminating mark in the leaves, arises from the manner in which they are perforated by the stem; and hence the vulgar names, Thorough-wort and Thorough-wax.

The origin of the common name *bone-set*, it is not easy to ascertain; though a mere suggestion of Professor Barton seems to have afforded a late writer on the Materia Medica a hint for a derivation, which he has not failed to avail himself of. We are told by this gentleman, upon what authority other than his own, we are

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left to conjecture, that the plant derived the name of bone-set from the relief it afforded in a certain "singular catarrh or species of influenza," which prevailed about thirty years ago, and was denominated break-bone-fever. We are satisfied the Professor would find it extremely difficult to shew by any printed testimony, that the medicinal powers of Eupatorium perfoliatum were generally known even twenty, much less thirty years ago, or that the vulgar name, bone-set, is of earlier origin than fifteen years back.

The root is perennial, somewhat horizontal. The stems erect, from two to four feet high, round, very hairy, (hair flexuose,) and divided towards the top into decussating branches, so as to form when in flower, a flat dense fastigiate corymb. The stem is generally greyish-green, but often purplish towards the base. The leaves decussate each other at regular distances; are perfoliate, or perhaps connate, broadest at their base or point of union with the stem, and taper gradually into a long acumination. They are serrate, very rugose or wrinkled, closely beset with hairs of a grey colour, which, together with those wherewith the stem, and indeed nearly the whole plant is covered, give it a greyish-green aspect. The under surface of the leaves is paler than the upper, and both woolly. The two or three upper pairs of leaves on the stems, and all those on the branches, are given off in pairs, and lose the perfoliate or connate character, being there merely sessile. Flowers terminal, white, supported on short hairy peduncles, in close fastigiate corymbs. Calix

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imbricate and hirsutulous; scales lanceolate, acute. Florets about twelve or fourteen. Each flower tubulous, divided into five segments or teeth, as represented in Fig. 3. Anthers deep blue or black, filaments five, united with a fistulous brace. Seeds prismatic, attenuate at the base, of a crow-black colour, and situated on a naked receptacle. Pappus or down of the seed pilose; hairs scabrous. The flowers are fully expanded in the month of August, and the plant is every where found in bloom during the autumn, and even as late as the last of October.

CHEMICAL PROPERTIES.

We are indebted to Dr. Andrew Anderson, for an excellent chemical analysis of this species of Eupatorium. According to his experiments, it appears, that it contains first: a free acid—secondly, tannin in small quantity—thirdly, a bitter extractive matter—fourthly, a gummy matter—fifthly, a resin—sixthly, azote—seventhly, lime, probably the acetate of lime; eighthly, gallic acid, probably modified; ninthly, a resiniform matter soluble in water and alcohol, which seems to contain a bitter principle.

The medicinal properties of bone-set are fully given out, both to aqueous and spirituous menstrua. Proof spirit digested on the leaves and flowers, make a fine preparation for cases which will bear the spirit.

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MEDICINAL PROPERTIES.

Great indeed is the renown of the Eupatorium perfoliatum, as a medicine, and various as well as powerful are the virtues attributed to it. Should a wide extended experience justify, in future, only one-half the encomiums which have been lavishly bestowed upon it, it will even then be entitled to a distinguished rank in the Materia Medica. It is impossible to read the accounts which are given of the virtues and effects of this popular medicine, without indulging the belief, that favouritism, partiality, or fashion, has had some share in decorating it out for public view. Believing as I do, that few plants of our country are more deserving of the attention of physicians than this, for its real virtues, I regret the too ready adoption from vague rumours, of accounts of those which are merely imaginary, and which may lead, on the discovery of the error, to limit its use, or to its total rejection from practice. Notwithstanding the real, the obviously beneficial effects, in curing, or alleviating diseases, or symptoms of diseases, which belong to this plant, some of those who have written on its properties, have needlessly indulged in a vein of exaggeration, wholly incompatible with the reality, and calculated to bring the medicine sooner or later into disrepute. I have ventured to speak thus confidently on this subject, because as it is a favourite article in my own practice, I have consequently been led to use it frequently and ex-

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tensively, and to give it every trial which a favourable impression of its powers would induce me to make. The result has been, that while I deem its properties on the one hand much exaggerated and even misrepresented in some points of view, I cannot but believe on the other, that it is a highly important article, when administered in those affections, to the symptoms of which its peculiar virtues are applicable and proper.

Bone-set has been represented by various writers, most of whom have copied after others, as a tonic, stimulant, diaphoretic, emetic, cathartic, diuretic, astringent, and deobstruent; as capable of curing obstinate cutaneous affections, yellow fever, petechial or spotted fever, rheumatism, &c. &c. thereby leading the unwary and the inexperienced practitioner, to depend too much on its reputed powers.

The sensible properties of bone-set would seem to point out its most estimable medicinal powers. The whole plant is intensely bitter. It is also possessed of some slight astringency. When dried it has a peculiar, and not disagreeable odour.

The leaves and flowers according to some writers on the subject, contain the bitterness, in different degrees of intensity. The late Professor Barton states in his collections, that the flowers are more active than the leaves, and in this error, Dr. Chapman has copied him. Dr. Anderson on the other hand asserts, that the leaves are more active

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than the flowers, and he has been copied by Thacher, Coxe, and others. Careful practical experiments with the decoctions and infusions of both these portions of the plant, in similar and dissimilar doses, have led me to form the opinion, that there is no difference in the bitterness or activity on the system, between the leaves and flowers. Both may be used indiscriminately, and either will answer. The stems also, allowing for the proportion of medulla which enter into their structure, are nearly as efficacious, as the other portions. Consequently, the whole plant may be safely and advantageously used for medical purposes.

I have said that the sensible properties of the bone-set indicate its medicinal virtues; and it appears that the tonic and diaphoretic effects, both of which are unequivocal and powerful, are those most deserving attention. It is also somewhat stimulant, but this effect is transient; and perhaps it is no more so than all bitters are, in their first impression on the system, particularly if it be debilitated by disease, or in a state of excitement from fever. It is certain that it has been successfully prescribed in violent catarrhs attended with some fever, and its stimulant effect has not been so considerable as to be injurious in those cases. As a tonic bitter it has been long known in this country, and the Indians are said to have used it in the cure of intermittent fevers; we are even told by the late Professor Barton, that they recognize it by a name which may be translated

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ague-weed. Imitating their practice, many country physicians of respectability use it as a substitute for Peruvian bark in these affections. Their reports are uniformly favourable to the powers of the article in curing those fevers, unassisted by any other medicines. This practice is particularly common in the middle and lower parts of Jersey, where I have had opportunities of knowing that this plant was successfully used by practitioners of medicine, and in domestic practice, in the treatment of many of the different types of intermittent fever. Dr. Anderson, in his inaugural thesis, enumerates and details some cases of quotidian, tertian, and quartan intermittents, in which the bone-set had, under his own observation, performed cures. His favourable accounts are supported by the testimony of Dr. Hosack, who has frequently prescribed the article in the treatment of intermittents. I am not able to offer any corroborative testimony in favour of this plant in these affections, never having used it in them. Dr. Barton says, that in decoction it has been efficaciously administered in the hot stage of simple intermittents. The copious perspiration produced when thus given warm, is highly beneficial, and it is this effect which has given the plant the appellation of "vegetable antimony." The Doctor, however, seemed to think, that to the heat of the water when employed in this manner, was greatly owing the diaphoretic effect; and, unaided by this adventitious circumstance, he doubts whether the determination to the skin can equal that of Polygala seneka. In cold infusion I have not been able to see any very decided or remarkable diaphoretic effect from it.

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The efficaciousness of bone-set is not confined to the simple forms of intermittent fever. It has, beyond disputation, been successfully employed in remitting bilious, in yellow, and typhus fevers, particularly in the form of the latter disease, lately so rife throughout the United States. And it is in cases of this disease that I have myself used it, and in which I can offer the additional experience of an excellent practitioner, the late Samuel C. Hopkins, M. D.* This gentleman resided in the village of Woodbury, New Jersey, and enjoyed an extensive practice in a range of fifteen or twenty miles of a populous tract of country, in which, from the low and marshy nature of the soil—exposure of many of the inhabitants holding fisheries, to the water, and other pernicious causes—intermittent and typhus fevers were very prevalent, and the latter particularly malignant. The Doctor was among those partial to the sweating plan of treating this fever, and his unusual success in a multitude of cases for five or six years in succession, is strongly in favour of that mode of practice. The bone-set was the medicine used in producing this effect. He prescribed it freely in warm and cold decoction, but preferred the warm. He assured me that in many instances, his sole reliance was on this plant, which was occasionally so varied in its manner of exhibition, as to produce emesis; and frequently was intentionally pushed to such extent, as to excite free purging. Its

* Late of Philadelphia.—This amiable and excellent man fell a victim to typhus fever.

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diaphoretic effect, however, he deemed it indispensable to ensure, and therefore preferred in general giving it warm. He has related to me many instances in which farmers had, without calling in medical advice, or where it could not readily be procured, resorted of their own accord to the free exhibition of a strong decoction of this plant, for several nights and days in succession, assisting its sweating effect by warm bed-clothing; and uniformly with beneficial, often with entirely successful effect.

Encouraged by these reports, I have in every instance which has occurred to myself, imitated this practice, not, however, placing such entire reliance on this means of cure as did the Doctor, but using in addition, repeated small purgings. Yet I am decidedly of opinion, from my experience with this article, that it is, in all cases of low typhus, attended with hot and dry skin, as is commonly the case, an inestimable medicine; and I have seen reason, in my own trials, to prefer the warm decoction or infusion, to the cold, or to the plant given in substance. In every instance I have used the decoction of the flowers and leaves of the dried plant, to which form I give preference to any other. I have not found it so apt to produce vomiting in this way, if judiciously and cautiously administered, as the writers in our dispensatories seem to fear. From one to two table spoonfuls given every half hour is, I think, the best plan to ensure its diaphoretic, and avoid its emetic effect. In

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this way it excites nausea, and keeps up the moisture of the skin. Its mere tonic effect is most easily ensured by giving in substance, from twenty grains to a drachm of the powdered leaves and flowers, from three to six times in the course of twenty-four hours.

Of the beneficial administration of bone-set, in the treatment of yellow fever, medical records present us with well authenticated accounts. It was extensively used by some practitioners in this disease, at least as early as one thousand seven hundred and ninety-eight, when it was then rife in this city; and we have the authority of Dr. Barton to believe, that in that epidemic and others, it was used with much advantage. Pursh, the Botanist, likewise states, in a letter addressed to William Royston, Esq. inserted in the Medical and Physical Journal, that much benefit was derived from its use by himself and others, during his stay in the neighbourhood of Lake Ontario; where both the influenza and lake fever, the latter of which he says was similar to the yellow-fever, were raging among the inhabitants. In those cases it was used in decoction, and spirituous infusion.

It appears by Dr. Anderson's Thesis, that the bone-set was extensively used in the New York Alms-house, in the year one thousand eight hundred and twelve, in the treatment of intermittents, to the exclusion of the Peruvian bark. It was given either in decoction, or in powder. In the latter, in doses from twenty to thirty grains every second hour during the intermission. This practice the Doctor states,

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was followed with uniform success. He further informs us, that Dr. Hosack and Dr. Bard, in the treatment of yellow-fever, placed almost exclusive dependence, after proper evacuations, on sudorifics; and among this class of medicines used the bone-set, and estimated it highly. More evidence in favour of this article in febrile affections might be adduced; but I presume enough already has been stated to show its undisputed claim to be ranked as a valuable article of the Materia Medica. Yet, though I have much reliance on the powers of this plant, I cannot advocate or recommend the practice of depending exclusively on its effects, in the treatment of fever or catarrhs, of whatever kind. That it would be safer to use it as an auxiliary, than to rely wholly on its powers, in any but slight cases, does not, I think, admit of a doubt.

I must here mention, that the bone-set has likewise been said to cure acute rheumatism; and that it has been used in those cases, my own enquiries and observations assure me. Though I do not know any well-attested facts of its efficacy here, or of any cures that it has performed of this disease, I yet think it more than probable, its sweating powers might be advantageously enlisted, in conjunction with blood-letting, to cure acute rheumatism, after the highly inflammatory action has been nearly or wholly subdued. But, perhaps, in the chronic state of this disease it would be more safely administered, and not unlikely, more usefully.

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Dr. Barton speaks of its alledged beneficial effect in a cutaneous affection of a very peculiar character, which appeared some years ago in Virginia, and was called, from the part of the country in which it raged, the James's river ring-worm. This solitary fact is all that can be adduced in favour of its efficacy in cutaneous diseases, and it does really not appear to me to be sufficiently supported by corroborative testimony, or the experience of others.

It cannot be doubted that, on this point, powers have been ascribed to the plant which it does not possess. This much a regard for truth, obliges me to declare, that in three or four cases of obstinate cutaneous eruptions, in which I have given the bone-set every fair trial, it proved utterly worthless.

I can readily believe, it has done good in diseases of general debility, which occurred in the New York Alms-house, as mentioned in the thesis already referred to. But that it is competent to the cure of dropsies, I much doubt. Indeed my enquiries and observations in different states, do not corroborate the assertion of Dr. Chapman,* that "the physicians of this and the neighbouring states, are much in the habit of prescribing it, in dropsical effusions." I have no where been able to learn, that, either by physicians or in domestic employment of the plant, such a practice has been resorted to.

* Elements Mat. Med. vol. i. p. 345.

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Neither does it seem probable to me, that the sensible or other known properties of bone-set, justify the notion, that in such cases it would be efficacious. From its tonic effect, indeed, it may not be injurious, but perhaps this is the utmost that can be said on this point. Certainly the inconsiderable diuretic consequences of the use of the herb, promise nothing beneficial in dropsies. For any effect it may occasionally have on the kidnies, it shares with many other diaphoretic remedies, which, particularly if given in warm decoction, are well known occasionally to increase the urinary discharge.* Schoepf speaks of its use in gout, and recommends its external application for the relief of pains.

After the preceding observations, I am fully justified in recommending the bone-set as a valuable tonic bitter, at least equal to the chamomile; and as a medicine truly valuable for its diaphoretic effects. And though its other occasional qualities are not, in themselves, sufficient to recommend the plant to the notice of physicians, yet they certainly enhance the value of the article. The plant is so abundant throughout the country, that it is within the reach of every country physician, and those residing in cities or towns can also readily procure it; a circumstance which adds much to the satisfaction I feel in recommending it.

* It is not improbable that the Professor, who disclaims all knowledge of botany, and whose work indeed, on the Materia Medica, teems with botanical errors, may have mistaken the plant used in dropsies, or been misinformed.

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TABLE XXXVII.

Fig. 1. Represents a flowering specimen of Eupatorium perfoliatum. I have often seen the flowers reddish-purple.

2. A flower separated, and greatly magnified.

3. A floret separated from the flower, still more magnified.

4. Anthers embraced by the tube—somewhat enlarged.

5. A seed, magnified.

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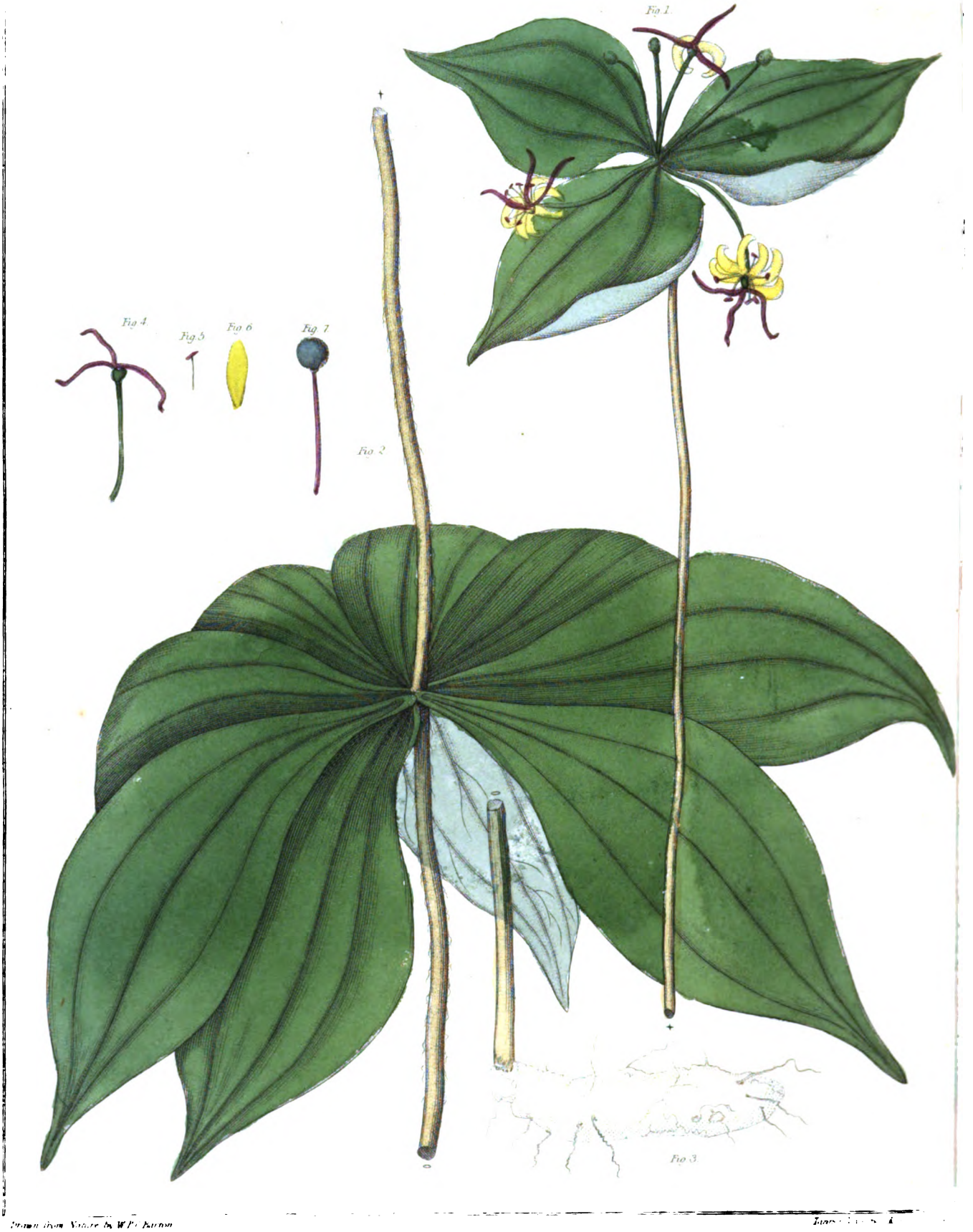

Drawn from Nature by W. P. Eaton

MELEOLA [illegible]

(Indian Cucumber.)

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MEDEOLA VIRGINICA.

INDIAN CUCUMBER. CUCUMBER-ROOT.

Germ. Virginische Medeola. (*Willd.*)

MEDEOLA Virginica. L. Sp. Pl. 483. Mill. Dict. n. 3. Gron. Virg. 39. Pluk. Alm. 401. t. 328. f. 4. Houttuyn. Lin. Pfl. Syst. vi. p. 389. Willd. Sp. Pl. tom. ii. par. 1. p. 270. Pursh, Fl. Am. Sep. vol. i. p. 244. Bot. Mag. 1316. Mich. Fl. Am. Boreal. i. p. 214. Muhl. Cat. Am. Sep. 2d. ed. p. 37. Bart. Prod. Fl. Ph. 44. Comp. Fl. Ph. vol. i. p. 175. Big. Flor. Bost. p. 85. Nutt. Gen. Am. Pl. vol. i. p. 238. Walt. Fl. Car. p. 126. Elliot. Fl. Georg., &c. vol. i. p. 426. Schoepf, Mat. Med. Am. p. 53. Bart. Collect. 3d. ed. par. i. p. 38. Hort. Kew. vol. i. p. 489. Cutler, 437. Stokes, Bot. Mat. Med. vol. ii. p. 326. Coxe's Disp. ed. 3d. p. 410. Dyck, Ed. Disp. p. 417.

MEDEOLA.

Nat. Syst. Juss. *Asparagi.*

Nat. Ord. Lin. *Sarmentaceae.*

Artif. Syst. Lin. Classis *Hexandria.* Ordo *Trigynia.*

Corolla 6-parted, revolute. *Calix* none. *Filaments* and *anthers* distinct. *Styles* none.

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Stigmas three, filiform and divaricate, united at the base. *Berry* 3-celled; cells 5 or 6-seeded. *Seeds* compressed, 3-sided.

Nutt. sub. Gyromia, Gen. Am. Pl.

MEDEOLA Virginica; caule lanugine decidua vestito; foliis in medio caule 6-8 verticillatis, in summitate ternis; ovali-lanceolatis; pedicellis aggregatis, terminalibus. *Mich.*

Stem simple, erect; leaves verticillated; flowers terminal, aggregate. B.

SYNONYMA.

MEDEOLA foliis stellatis lanceolatis fructu baccato. Gron.
LILIUM s. Martagon pusillum, &c. Pluk.
MEDEOLA verticillifolia. Stokes.
GYROMIA Virginica. Nutt. and Bart. in Comp. Fl. Ph.

PHARM.

MEDEOLÆ Virginicæ *Radix.*

THE Medeola Virginica is remarkable for the extreme regularity and simplicity of its structure, and may certainly be considered as a handsome plant. I have always endeavoured to give in this work, the derivation of the generic name, wherever it was known; but in the present instance it is not easy to determine whence the name Medeola originated. Professor Martin supposes that it is

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the diminutive of Medea, the renowned sorceress of ancient Mythology; and this appears to be the only suggestion on the subject, entitled to consideration.

The genus Medeola comprises three species, one or two of which Michaux, Gawler, and some other botanists have proposed to expunge. Jussieu intimates that it should be referred to Trillium or Paris, from its analogy to those genera, having verticillated leaves and the habit of Trillium; and Mr. Nuttall has recently severed the species now under notice, from Medeola, and constituted it a new genus, to which he has given the name of Gyromia, from γυρος, a circle, in reference to its verticillated leaves. He does indeed appear to have good reason for this separation; the present plant, having a three-celled berry, each cell containing from five to six seeds; while the other two, which are African species, have berries containing three cordate seeds. Therefore it was, that in my Compendium Floræ Philadelphicæ, I rather hastily adopted the new name. As, however, some inconvenience arises in a medical work like this, from the change of long-received names, I have, for the present, preferred the old one of Medeola.

The root is horizontal, from one to two inches long, about half an inch thick, oblong, fleshy, pure white, and covered with a few fibrous radicles. The stem is from one to two feet high, herbaceous, very erect, terete, shining, of a yellowish colour, and covered for a few

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inches above and below the lowest whorl of leaves, with a deciduous, white, flocculent coat, which can easily be removed by drawing the stems between the fingers. The leaves are in two distinct, remote whorls. Those forming the lowest whorl, which is about midway of the height of the stem, are about six or eight in number, broad, lanceolate, acuminate, attenuate at the base, entire, three-nerved, of a very yellow green above, and glaucous or nearly so on the underside. The upper whorl is at the top of the stem; and generally consists of three, but sometimes of four or five leaves, which are ovate, acuminate, attenuate at the base, and, like those of the lower whorl, entire, three-nerved, yellowish green above and nearly glaucous beneath. Mr. Elliot describes the leaves as membranous, which in the living state of the plant, I think they can scarcely be considered; though they do indeed dry with that appearance. The flowers are situated on the top of the stem; are aggregate, about three or six in number, two being mostly opened at a time, pedunculated, generally drooping and concealed under the upper whorl of leaves. They are supported by peduncles about three quarters of an inch or an inch long, first green, afterwards becoming red. The corolla consists of three straw-yellow petals, which are revolute, lanceolate, or lanceolate-oval, obtuse, appearing narrower on the flower than when separated and spread out as in Fig. 4, owing to the margin being somewhat repand; Linnæus says the specimen he received from Gronovius had four petals. Stigmas three, long, irregularly twisted, and divaricating horizontally, grooved above, and of a fine chesnut or madder

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brown colour. Stamens six, of the same colour. The berry is about the size of a common pea, of a blue colour, inclining to purple, and containing three cells, each having from five to six compressed three-sided seeds.

This plant has a wide range in our states, being every where found in moist rich woods, according to Michaux, Pursh, &c. from Canada to Florida. Its favourite situations are low thickets, bordering on rivulets; and in such places it will be found abundantly in the neighbourhood of this city, flowering in the months of May and June.

MEDICINAL PROPERTIES.

The claims of cucumber root, to be ranked as an article of the Materia Medica, are rather humble. It must be acknowledged that the sensible properties of the plant do not augur very favourably of its activity or usefulness, and it is even said the Indians eat the root as we do the cucumber. Yet it has been deemed proper to figure and describe it in this work, in consideration of some little repute it has enjoyed, as a diuretic, and its alleged benefit as a hydrogogue. Little seems to have been known of its real virtues, by those who have noticed it as a medicine. Schoepf, it is true, has enumerated it among the articles of the vegetable Materia Medica

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of this country: but he only asks the question whether it is allied to Ipecacuanha in its powers, referring to Linnæus's Flora Lapponica, and to Gronovius. Undoubtedly it is not entitled to any regard as an emetic; and it seems probable that its hydrogogue powers alone are worthy of any consideration. The late Professor Barton speaks dubiously in his publication on this subject, of its use in dropsies, which he mentions it has had the credit of curing. But I learned from him a year before his death, that some trials made by himself, in consequence of various information received from respectable sources of its virtues as a diuretic, resulted in the confirmation of the good accounts of the plant. They induced him to think more favourably of its powers. Though I have had no experience with it, as a medicine, I beg leave to recommend it for further experiment. Of the manner and dose in which it has been used, I know nothing.

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TABLE XXXVIII,

Represents the entire plant.

Fig. 1. The upper portion with the terminating whorl of leaves, flowers, and incipient fruit.

2. The lower portion (separated from Fig. 1, at the mark +) with the inferior whorl of leaves. The shaggy marks of the graver along this portion of the stem, intended to represent the flocculent investment, which in the plant itself covers just thus much of the stalk.

3. The root and lower portion of the stem, severed from the upper (Fig. 2.) at the mark o.

4. Peduncle supporting the germ, and three stigmas.

5. A stamen.

6. A petal.

7. The ripe berry.

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Drawn from Nature by W. P. C. Barton

Tanner Vallance Kearny &c

RUBUS VILLOSUS.

(Blackberry.)

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RUBUS VILLOSUS.

COMMON BLACKBERRY-BUSH.

High or Standing Blackberry. Hairy American Bramble, Ait.

Germ. Haarige Himbeere.—(*Willd.*)

Rubus Villosus. Willd. Sp. Pl. 2. p. 1085. Pursh, Fl. Am. Sep. 1. p. 346. Hort. Kew. ii. p. 210. Nutt. Gen. Am. Pl. i. 308. Bart. Prod. Fl. Ph. 56. Comp. Fl. Ph. i. p. 232. Muhl. Cat. 2d. ed. p. 52. Dyck. Ed. Disp. 366. Thach. Disp. 3d. ed. 340. Big. Florula Bost. 122. Mich. Fl. Boreal. Am. i. 297.

RUBUS.

Gen. Pl. 864.

Nat. Syst. Juss. *Rosaceae.*

Nat. Ord. Lin. *Lenticosae.*

Artific. Syst. Lin. Classis *Icosandria.* Ordo *Polygynia.*

Rubus, T. L. * *Ronce, Framboisier.* Calix patens 5-fidus. Petala 5. Stamina numerosa brevia. Semina numerosa baccata, suprà receptaculum commune densè collecta in baccam compositam. Frutices aculeati vel quandoque inérmes,

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rariùs herbæ semper inermes; folia simplicia aut ternata aut digitata, aut pinnata in Rubis quibusdam Commersonianis habitu similibus Rosæ; flores terminales aut et rariùs axillares, racemoso-paniculati aut rariùs solitarii, in *R. odorato* corymbosi et abortu dioïci. *R. Chamaemorus* sub terrâ monoïca et extùs dioïca, radicibus maris et fæminæ junctis, caulibus distinctis, observante post Solandrum Linnæo. Juss. Gen. Plant. ed. 1789. p. 338.

Cal. Patens, 5-fidus. *Pet.* 5. *Bacca* composita, acinis monospermis.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, flattish, in five oblong, spreading, simple, permanent segments. *Cor.* Petals five, roundish or oblong, somewhat spreading, inserted into the calix, and usually about the length of its segments. *Stam.* Filaments numerous, shorter than the corolla, inserted into the calix; anthers roundish, compressed. *Pist.* Germens numerous, altogether superior; styles small, capillary, one springing from the side of each germen; stigmas simple, permanent. *Peric.* Berry compound, consisting of several roundish pulpy grains, each of one cell, collected into a convex head, hollow underneath, inserted upon a conical spongy permanent receptacle, and at length deciduous. *Seeds* solitary, oblong, compressed.

Obs. The separate juicy grains, which compose the general berry, are usually so attached to each other, that they cannot be disunited without lacerating. In *R. saxatilis* they are distinct. *R. Chamaemorus* is not, as Linnæus first thought, dioecious, but monoecious; Dr. Solander having observed that the male and female flowers grow from one root, though on separate stems. Each flower of this species has indeed both stamens and pistils, though, in one or other flower, one part is imperfect.

Ess. Ch. Calix in five simple segments. Petals five. Berry superior, composed of single-seeded grains, deciduous. Receptacle permanent. Ency.

Rubus villosus; pubescens, hispidus, aculeatusque; foliis 3-5-digitatis, foliolis ovato-oblongis, acuminatis, serratis, utrinque pubescentibus, caulibus petiolisque aculeatis, calice brevi acuminato, racemo laxo, pedicellis solitariis.

Willd. and Pursh.

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Pubescent, hispid and prickly; leaves 3-5-digitate, folioles ovate-oblong, acuminate, serrate, every where pubescent; stems and petioles prickly, calix short, acuminate, raceme loose, pedicels solitary. B.

PHARM.

Rubi villosi, Radix, herba et fructus.

The term Rubus is an ancient Latin word, said to be of the same origin as *ruber*, which is supposed to be the Celtic *rub*, red; the prevalent colour of the fruit of many different species of rubus being red. The genus comprises a great number of plants, valuable for the grateful esculent quality of their fruits; and contains also about fifteen species,* which may be considered as medicinal. The whole number enumerated by Willdenow is thirty-one; but it is now known to be much greater, at least fifty species being ascertained as existing in Europe, the West Indies, Peru, Chili, Japan, China, in the islands of the Pacific, and on the continent of India. Those indigenous to this country are about nineteen or twenty, of which by far the most frequent, is the common blackberry, now to be particularly mentioned. It is however so universally and so well known, that it does not require a minute description. The root is creep-

* 1. Rubus chamæmorus. 2. R. trifidus. 3. R. arcticus. 4. R. saxatilis. 5. R. moluccanus. 6. R. quinquelobus. 7. R. occidentalis. 8. R. parviflorus. 9. R. cæsius. 10. R. corylifolius. 11. R. fruticosus. 12. R. idæus. 13. R. rosifolius. 14. Rubus procumbens. 15. R. villosus.

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ing, irregularly gibbous, perennial, woody, and of a reddish-brown colour, imparting a madder-brown or claret colour to water boiled on it. The stems are biennial, from three to seven feet high, weak, somewhat shrubby, of a reddish-brown colour, armed with large prickles. The smaller branches and new shoots are more slender, herbaceous, greenish, with here and there a tinge of brown or red, and also covered with prickles and fine hair. The leaves are in five's and three's, oval, acuminate, finely and sharply serrate, villous on both sides, and soft to the fingers, strongly veined and varying in size. The petioles are prickly, and also covered with hair. The flowers are large, white, borne in terminal panicles or racemes, consisting of a five-petalled corolla and numerous stamens. The filaments are very slender, and the anthers small. The fruit is first green, then red, and, when full ripe, of a deep shining crow-black, and deliciously flavoured when suffered to ripen on the bushes.

The blackberry is every where found in our states, by way sides, in old fields, along the margins of stone quarries, &c. delighting in dry arid soils. It flowers from May to July, and ripens its fruit in August.

MEDICINAL PROPERTIES.

Popular confidence in the medicinal virtues of the blackberry, has induced me to introduce it in this work; and popular partiality

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may account for the numerous tales of its wonderful powers. Due abatement on this account must therefore be made, from the report of its efficacy as an antilithic, a vulnerary, a febrifuge, a refrigerant, &c.

Few native articles possess a greater share of the favouritism of domestic practitioners; and in many sections of our country, blackberry tea is resorted to as a general corrective of all vitiated humours, a strengthener of the stomach and bowels, in short, as a perfect panacea. Like most other favourite articles in family use, its virtues have been overrated; but I am persuaded that there remains a sufficiency of creditable testimony in its favour, proving that its real medicinal virtues are valuable, and eminently serviceable in such disorders as require the exhibition of articles of an astringent nature; for this plant, in every part, is decidedly astringent, but the root especially partakes of this property. It is the root which is generally used, made into a tea; and the fruit in juice or syrup. The root is brought to our markets in the spring and fall of the year, and sold for medicinal purposes. A decoction made by boiling a handful of the cut or bruised portions, in a pint and a half of water, down to a pint, is the usual form of using it. Thus prepared, it is given in diarrhœas and dysenteries by the peasantry; and, as I have been uniformly informed by intelligent persons, with great success. The decoction is somewhat bitter, but not disagreeable, and is marked by a slight but grateful aroma. Its tonic effect, of which I have heard some

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praise, is certainly very inconsiderable, or at least evanescent; and in cases of mere debility, unless proceeding from a general laxity of the system, accompanied with slight disorders of the alimentary canal, it cannot be resorted to with any reasonable prospect of success. As to its reputed powers as an antitithic, I really do not think them worth consideration.

I have had some little experience with this article, and about a year since prescribed it in two cases of colera infantum with success. It was during my attendance in the Philadelphia Dispensary; and patients of the class which resort thither, are prone to follow the prescriptions of their physicians, when they order *herb teas*, so that I had a fair opportunity of seeing the power of this article. The fruit which is gratefully acidulous, is kind and healing to the disordered stomach and bowels of persons labouring under dysentery, recent or protracted. It may be eaten by such persons, in its full ripe state, when not too long gathered, not only with impunity, but evident advantage; being found to promote the natural and healthy secretions of the body. To children labouring under the bowel complaint, during dentition or at other times, it is particularly grateful and beneficial. It is a more common practice, however, to give in such cases, and in the dysenteries of adults, a preparation known in families by the name of blackberry jam, or often a syrup, recent or preserved, made from the full ripe fruit. Of the efficacy of the former I have seen many

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instances, among which is my brother, who, while labouring under a severe attack of dysentery, experienced the most sudden and salutary change in his disorder, on my giving him the jam plentifully. As nothing can be more grateful to the stomach of persons, adults or infants, affected with this disease, it should always be resorted to when procurable, and given almost *ad libitum*. The fine aroma of the fruit is preserved both in the syrup and the jam, and a few spoonfuls of it will be found to relieve the painful tenesmus.

A jelly made of the fruit when on the turn from red to black, has been said to be useful in gravelly complaints; but this, I think, is not entitled to any credit.

The dose of the decoction, is a teacup full for an adult, and two or three tea-spoonfuls for a child, three or four times a day.

Schoepf describes, in a medicinal point of view, the Rubus fruticosus, (certainly the present plant) and the Rubus occidentalis or wild raspberry, together. They are undoubtedly closely allied in their medicinal virtues, as they are in their botanical structure and habit. I have seen raspberry jam (prepared from the Rubus idæus or garden raspberry) used in the manner mentioned above, for the blackberry: but it proved much inferior; whether the jam and syrup prepared from the wild American raspberry, be more closely allied in its virtues to those made of the blackberry, I know not, but it is worth an experiment. A syrup prepared from the juice of the garden rasp-

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berry, is ordered by the London Pharmacopœia, for officinal use. And I think the blackberry of our own country, is deserving of the same attention. I had designed to give in this number a figure of the Rubus procumbens, or dewberry, which is closely allied to the plant now under consideration, in a medicinal point of view. I unfortunately, however, let the period of its florescence pass by, and it will consequently be excluded from these two volumes, though I shall not omit to figure it, should the work be continued. What has been said of the root, and of the fruit of the blackberry, however, may very justly be considered as applicable to the root and fruit of the dewberry. Indeed, the two plants are not unfrequently used indiscriminately.

TABLE XXXIX.

Fig. 1. Represents a flowering branch of the Rubus villosus, a specimen having been selected, containing a few flowers. They are often very numerous and form a kind of panicle.

2. Represents the fruit, which is a compound berry, with the acini frequently projecting irregularly beyond the line of the circumference. It must here be remarked, that blackberries are often found, particularly late in the season, smaller, and less oblong, or more globular than this—which, however, is the genuine form of the fruit.

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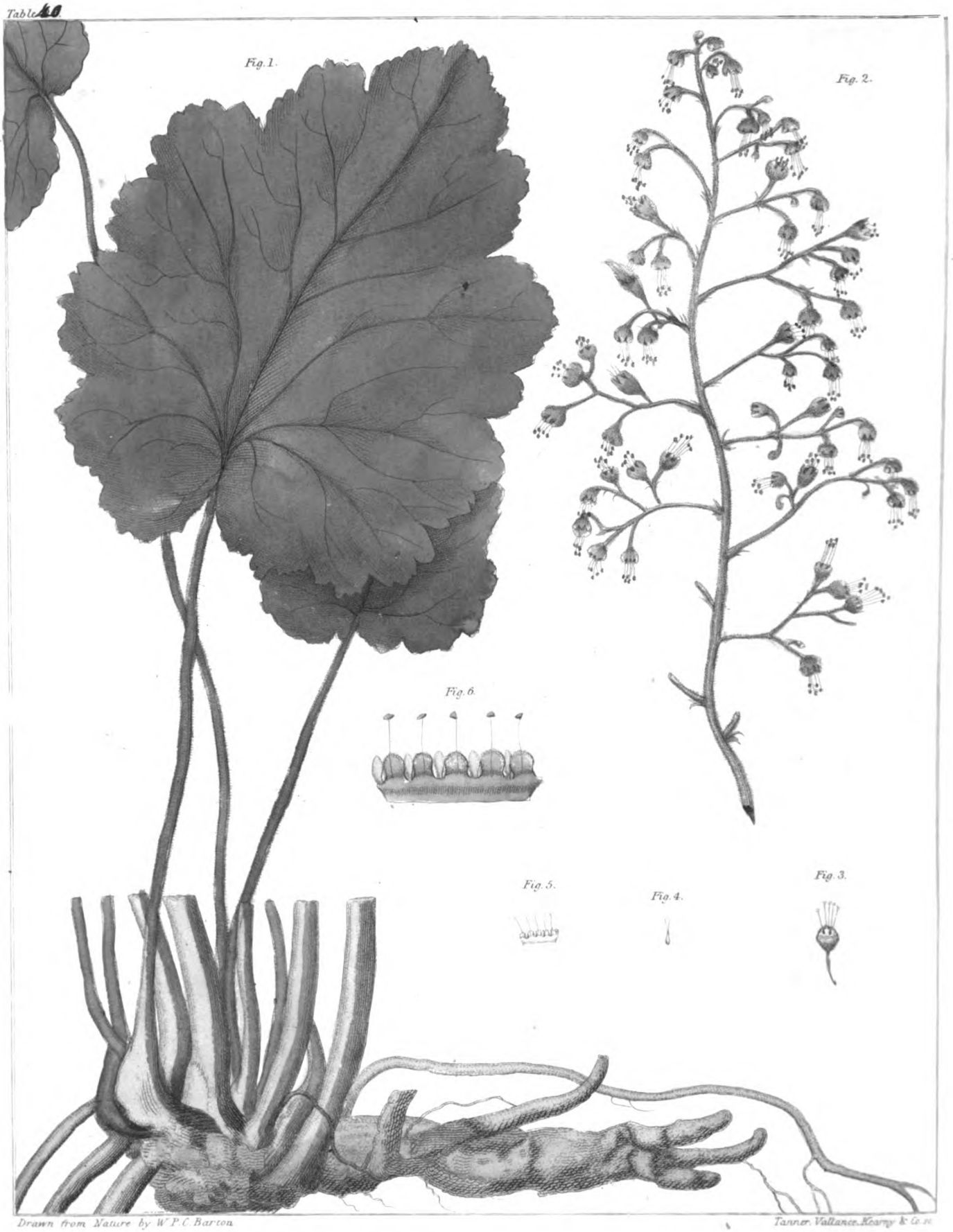

Drawn from Nature by W. P. C. Barton.

Tanner, Vallance, Kearny & Co. sc.

HEUCHERA AMERICANA.

(Alum-root.)

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HEUCHERA AMERICANA.

ALUM-ROOT. AMERICAN SANICLE.

Heuchera Americana. L. Sp. Pl. 238. Hort. Cliff. 82. Gron. Virg. 29. Roy. Lugdb. 437. Mill. Dict. Knip. Cent. 5. n. 42. Murray, Nov. Com. Gott. vol. iii. p. 66. Herm. Parad. 131. t. 131. Pluk. Alm. 332. t. 58. f. 3. Houttuyn. Pfl. Syst. Lin. v. p. 840. Willd. Sp. Pl. i. p. 1328. Muhl. Cat. 2d. ed. p. 29. Hort. Kew. i. p. 320. Royen. 437. Boerh. i. p. 208. Bart. Col. ed. 3d. par. i. p. 9. par. 2. p. 2. Coxe's Disp. 3d. ed. 350. Dyck. Ed. Disp. 416. Pursh, Fl. Am. Sep. i. p. 187. Mich. Fl. Am. Boreali. i. p. 171. Elliot. Sketch. i. p. 337. Nutt. Gen. Am. Pl. i. p. 174. Bart. Prod. Fl. Ph. 36. Comp. Fl. Ph. i. p. 133. Stoke's Bot. Mat. Med. ii. 41.

HEUCHERA.

Gen. Pl. 447.

Nat. Syst. Juss. *Saxifragae.*
Nat. Ord. Lin. *Succulentae.*
Artific. Syst. Lin. Classis *Pentandria.* Ordo *Digynia.*

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HEUCHERA, L.* Calix 5-fidus. Petala 5-parva. Stamina 5. Capsula 2-locularis. Folia *H. Americanae* radicalia et flores in scapo paniculati terminales. *H. Dichotomae* caulis dichotomus et pedunculi 2-flori foliis oppositis axillares.

Juss. Gen. Plant. ed. 1789. p. 308.

Caps. 2-locularis, 2-rostris. *Pet.* five, calici inserta.

Gen. Ch. *Cal.* Perianth of one leaf, with five roundish, narrow, obtuse segments. *Cor.* Petals five, lanceolate, inserted into the margin of the calix, and of the same length with it. *Stam.* Filaments five, awl-shaped, erect; anthers roundish. *Pist.* Germen roundish, cloven half way down, ending in two straight styles, the length of the stamens; stigmas obtuse. *Peric.* Capsule ovate, acuminated, half cloven, of two cells, with two beaks which are reflexed. *Seeds* numerous, small.

Ess. Ch. Petals five. Capsule with two beaks and two cells.

HEUCHERA Americana; viscido-pubescens; scapo foliisque aperiusculis, foliis modice rotundato-lobatis dentatis; dentibus dilatatis obtusis mucronatis, pedunculis paniculæ tres dichotomis divaricatis, calicibus brevibus obtusis, petalis lanceolatis longitudine calicis, staminibus longe exsertis. *Pursh.*

Viscid and pubescent; scapes naked, thyrsus elongated; radicle leaves on long petioles, with rounded lobes. *Pers.*

SYNONYMA.

HEUCHERA cortusa. Mich.

HEUCHERA viscida. Pursh.

CORTUSA Americana. Herm.

MITELLA Americana, flore squallidæ purpureo, villoso. Boerh.

PHARM.

HEUCHERÆ Americanæ, *Radix.*

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THE genus Heuchera was named in honour of John Henry Heucher, professor of medicine in the University of Wittemberg, who was the author of a botanical and some medical publications.*

According to Pursh there are five species natives of North America; though Dr. Muhlenburg and Mr. Nuttall only enumerate three. H. Americana is the only species with which I am acquainted. It is indeed the only one growing in Pennsylvania and Jersey; and it is in this neighbourhood quite common.

The root is horizontal, irregular, knotty, slightly compressed, of a yellowish colour, and an intensely astringent taste. There are no stems. The scapes are numerous from a single root, naked, terete, smooth under the ground, and just where they emerge from it, of a bright carmine colour. Higher up they become very hairy, and of a green colour, frequently attaining a height of two or three feet. The common height is about fourteen inches. The leaves are all radical, cordate, five to seven lobed, having the lobes rounded and toothed, and the teeth garnished with a small point. The flowers are small, borne on a long, loose, terminal and pyramidal panicle or thyrsus. Calix five-parted. Petals minute, rose-coloured, inserted

* He published in 1711, "Index Plantarum Horti Medici Academiæ Wittembergensis," arranged according to the system of Rivinius. And in 1712, he published a treatise entitled, "De igne per ignem extinguendo, sive de præstantissimo Camphoræ usu in febribus acutis."

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into the tube of the calix. Filaments more than twice the length of the calix, delicate, yellow, and inserted into the calix. Anthers small, red, globose, two-celled. Germ bifurcated at the summit, and ending in two diverging slender styles. Capsule consists of two long beaks, containing a great number of very small blackish or deep brown seeds.

The whole plant is every where covered with a soft pubescence, which on the branches of the panicles and upper parts of the scapes, is viscid or clammy; and the margins of the leaves are finely fringed. The viscid pubescence caused Pursh to alter the specific name here used, to that of viscida. The plant inhabits shady woods, thickets, among rocks, and stony places in fields, near water, seeming always to prefer a moist soil, and one tolerably rich. It is in full flower in May, June, and at this season may be found in every state of the union. Pursh says, it varies with nearly smooth leaves.

MEDICINAL PROPERTIES.

The Alum-root, as its name implies, is an astringent; and for this property, which it possesses in an eminent degree, the plant is here figured and described. Little seems to be known, as yet, of its properties, further than this. And it is not used, so far as I know, in Pennsylvania, Jersey or Maryland, as a medicine. It is said by Professor Barton, to be one of the articles of the Materia Medica of the

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Indians, who use it as a styptic, and in the treatment of obstinate sluggish ulcers.

Dr. Barton further says, "it is the basis of a powder, which has lately acquired some reputation in the cure of cancers."* In such cases he supposed its efficacy was owing to its astringency.

Of the medicinal virtues of the plant in question, my own personal experience does not entitle me to speak, not having ever employed it in any way. To those who feel inclined to make experiment with native articles of the class of astringents, it may be confidently recommended as worthy of notice.

* Collections.

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TABLE XL.

Fig. 1. Represents the root, leaves and lower portions of the scapes. The petioles are generally of unequal lengths, and often much longer than here represented.

2. The upper portion of a flowering panicle.

3. A flower separated, of its natural size.

4. The germ and styles.

5. The flowers opened, shewing the stamens and petals inserted into the calix.

6. The same, greatly magnified.

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Drawn from Nature by W.P.C. Barton.

J.G. Warnicke Sculp.

HEDEOMA PULEGIOIDES.

(Pennyroyal)

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HEDEOMA PULEGIOIDES.

PENNYROYAL.

Germ. Poleyblattrige Cunile. (*Willd.*)

HEDEOMA Pulegioides. Sp. Pl. i. p. 593. Sub. Melissa Pulegioides. Sp. Pl. ii. p. 30. Gron. Virg. 167. Kalm. it. ii. p. 314. Houttuyn. Lin. Pfl. Syst. v. p. 136. Willd. Sp. Pl. i. p. 123. Pursh, Fl. Am. Sep. ii. p. 414. Mich. Fl. Am. Boreal. i. p. 13. Muhl. Cat. Pl. Am. Sep. 2d. ed. p. 3. Bart. Prod. Fl. Ph. 15 and 63. Comp. Fl. Ph. i. p. 13. Big. Floru. Bost. 7. Elliot, Sketch. i. p. 27. Nutt. Gen. Am. Pl. i. p. 16.

HEDEOMA.

Persoon Synopsis, ii. p. 131.

Nat. Syst. Juss. *Labiatae.*

Nat. Ord. Lin. *Labiatae.*

Artific. Syst. Lin. Classis *Diandria.* Ordo *Monogynia.*

Cal. basi gibbus. *Cor.* ringens. *Stam.* 2-sterilia.

HEDEOMA pulegioides; pubescens, foliis oblongis serratis, pedunculis axillaribus verticillatis, calicis labio inferiore bisetso setis ciliatis. *Pers.* and *Pursh.*

Pubescent; leaves oblong, serrate; peduncles axillary and verticillate; the lower lip of the calix biseted; the bristles ciliated. B.

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SYNONYMA.

CUNILA pulegioides. Willd. Sp. Pl.

MELISSA pulegioides. Sp. Pl. i. p. 593.

MELISSA floribus verticillatis, glomeratis, secundum longitudinem caulis, foliis tomentosis. Gron.

PHARM.

HEDEOMÆ pulegioidis, *Herba.*

DESCRIPTIO UBERIOR.

PLANTA spithamea, brachiata. *Folia* lanceolato-ovata, scabriuscula, uno alterove dente notata: superiora angustiora. *Verticilli* secundum totam longitudinem plantæ. *Bracteae* utrinque binæ floribus majores, præter alias minutas. (Mant.) *Calix* decemstriatus, scaber: L. superiore trifido acuminato, inferiore setaceo. *Corolla* alba, fauce violacea: Lab. superiore vix emarginato. *Stamina* duo, corolla breviora, fertilia, et filamenta alia duo minora castrata. (*Willd.*)

PENNYROYAL needs but little description, being so universally known. The root is annual, small, branched, fibrous and of a yellow colour. The stem is from nine to fifteen inches high, obscurely angular, but often quite terete, pubescent, and very much branched; branches erect. Leaves small, opposite, lanceolate, or ovate, atten-

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uated at the base, into slender petioles, sparsely dentated, prominently veined, particularly beneath, and pubescent. Flowers very small, pale-blue, verticillate on short peduncles. Calix striated and pubescent, having the upper lip divided into two setous, ciliated segments; the lower lip into three larger, and destitute of ciliation.

The flowers appear in July, and the plant continues to bloom till the last of autumn. It is distributed extensively over every part of the United States, growing always on dry, and seems to prefer arid and calcareous soils. It is very abundant by road sides, and is frequently seen growing in the crevices and ruts of turnpikes.

The whole plant gives out when pressed between the fingers or agitated, a strong, pungent and grateful scent, which is extremely reviving and pleasant. Great quantities of the herb are brought to the Philadelphia Market, and vended at a trifling price, for medical purposes; and the ready sale it meets with, proves how extensively it is used in domestic practice.

MEDICINAL PROPERTIES.

Pennyroyal is introduced into this work, an account of the high degree of popular confidence it enjoys, as an emenagogue. Whether the herb is entitled to all the reputation it possesses, in producing a return of the suppressed catamenia, I cannot undertake to

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say; but certainly there are few persons who have used it, that do not bear testimony of the efficacy of Pennyroyal tea, as the decoction is usually called, at least in common or slight cases of obstruction, or interruption of the menses. Hot water readily extracts the peculiar warm, pungent and aromatic property of the plant; and sweetened with honey, molasses, or sugar, it is a grateful beverage. It is generally administered simultaneously with the *pediluvium;* and, I have always heard, and from many highly creditable sources, with complete success. From what I can learn on the subject, little dependence should be placed on this practice, except in recent cases of suppression. It is well known that the Mentha Pulegium, that is, Pennyroyal or Pennyroyal-mint of Europe, has no inconsiderable reputation in similar cases. It must not be forgotten, that the American plant known by the name of Pennyroyal, or wild Pennyroyal, is entirely distinct from the Pennyroyal of Britain, and belongs indeed to a very distinct genus. I have mentioned this fact here, because it appears that some of the writers in the American Dispensatories, seem to speak of them as identical. The same observation applies to a late work on the Materia Medica.*

An infusion of Pennyroyal is said by Kalm, in his travels through this country, to be used by persons who have taken cold, and have pains in the limbs.

I have heard that the Hedeoma pulegioides is sometimes given in spirituous tinctures, but I know of no instance in which it has been used. The plant yields an essential oil, for which see Appendix.

* By Dr. Chapman.

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TABLE XLI.

Fig. 1. Represents an entire plant of a very common size, of the Hedeoma pulegioides.

2. The calix, separated.

3. A front view of a separated flower, the size of nature.

4. The same, greatly magnified.

5. A side view of the separated flower.

6. The same, greatly magnified.

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Drawn from Nature by W. P. C. Barton

CUNILA MARIANA.

(Dittany)

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CUNILA MARIANA.

DITTANY.

Mountain Dittany. Wild Basil. Mint-leaved Cunila. Maryland Cunila.

Cunila Mariana. Lin. Sp. Pl. 30. Also, Sp. Pl. i. 568. Gron. Virg. 64. Ed. n. 88. Schoepf, Mat. Med. Am. 5. Hort. Kew. i. 31. Mich. Fl. Boreali-Am. i. 13. Vahl. enum. i. 213. Pluk. Mant. 34. t. 344. fol. 35. pl. 1. Hist. ox. iii. 413. s. 11. t. 19. f. 7. Stokes's Bot. Mat. Med. 1. 43. Pursh, Fl. Am. Sep. ii. 406. Muhl. Cat. Pl. Am. Sep. ed. 2d. p. 3. Elliot's Sketch. i. p. 27. Bart. Prod. Fl. Ph. 15. Comp. Fl. Ph. i. p. 13. Nutt. Gen. Am. Pl. i. 15.

CUNILA.

Gen. Pl. 35. Schreb. 46.

Nat. Syst. Juss. *Labiatae.*

Nat. Ord. Lin. *Verticillatae.*

Artific. Syst. Lin. Classis *Diandria.* Ordo *Monogynia.*

Cunila, L. * Coniele. *Calix* cilindricus 10-striatus 5-dentatus. *Corolla* bilabiata, supe-

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riùs erecta plana emarginata, inferiùs 3-loba. *Semina* intrà calicem villis clausum. Flores corymbosi aut verticillati, axillares and terminales.

Juss. Gen. Plant. ed. 1789. p. 111.

Cal. cylindricus, 5-dentatus, fauce villosus. *Cor.* ringens: labio superiore erecto, plano, emarginato. *Stam.* 2-sterilia.

Calix cylindrical, 10-striate, 5-toothed. *Corolla* ringent, with the upper lip erect, flat, and emarginate. *Stamens* 2-sterile. The two fertile stamens with the style exserted, nearly twice the length of the corolla. *Stigma* unequally bifid. *Seeds* four. *Nutt.*

Gen. Ch. *Cal.* Perianth one-leafed, cylindrical, striated, with five somewhat unequal teeth, permanent. *Cor.* one-petalled, ringent; upper lip erect, flat, emarginate; lower lip three-parted; segments rounded, middle one emarginate. *Stam.* Filaments two, fertile, two without anthers; anthers roundish, didymous. *Pist.* Germ superior, four-parted; style filiform; stigma bifid, acute. *Peric.* The calix closed at the throat with shaggy hairs. *Seeds* four, egg-shaped, minute.

Ess. Ch. Calix five-toothed, corolla ringent; upper lip erect, flat. Two of the filaments barren. Seeds four.

Cunila Mariana; foliis ovatis serratis sessilibus, corymbis terminalibus dichotomis.

Willd. and Pursh.

Leaves ovate, serrate, sessile; corymbs terminal, dichotomous.

SYNONYMA.

Satureja origanoides. Sp. Pl. 1. 568. Gron. 88. ed. 2d.

Thymus, &c. Gron. 64. ed. 1.

Calamintha mariana mucronatis rigidioribus, &c. Pluk. Mant.

Calamintha erecta Virginiana, &c. Hist. ox.

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PHARM.

Cunilæ Marianæ. *Herba.*

Qual. Fragrans, spirans, odore ocymum referens.

Vis. excitans, nervina.

Usus. febres intermittentes; cephalalgia; succus expressus cum lacte ad morsura serpentum. *Schoepf.*

DESCRIPTIO UBERIOR.

Radix fibrosa perennis. Caulis acute quadrangulatus, ramosus, fulvus. Folia subsessilia, ovata, acuta, serrata basi sub-cordata subtus pallida. Corymbi terminales et axillares dichotomis, pedicellis capillaribus, bracteolis linearibus. *Cal.* cylindric, five-fidus, laciniis brevibus æqualibus acutis; 10-striatus, pilis nitentibus. Os calicis villosum: semina quatuor. Habitat in montosis siccis, et sylvis aridis umbrosis, florens Julio.

The genus* to which this handsome little plant belongs, is peculiar to America; and it contains properly, now that Hedeoma is separated from it, only the single species here figured—the second species, C. capitata of Vahl, being more nearly allied, it is said, to Ziziphora.

The root of dittany is small, fibrous and yellowish, resembling that of the common pennyroyal. The stem is delicate and slender, four-

* Cunila is the κονίλη, of Plin. Nicand.

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sided, very smooth, much branched, and of a reddish-yellow, rarely purplish colour. The branches are given off opposite, or nearly so, to each other. The leaves are small, punctated, sub-sessile, opposite, ovate, acute, round-cordate at base, sharply serrated, of a dry texture, and waved on the margin and disk. They are very glabrous above, and of a fine green colour, and bluish-green, on their under surface. Flowers numerous, in terminal and sometimes axillary dichotomous corymbs, situated on short, filiform, yellow or reddish peduncles. Calix striated. Corolla bluish-purple. Mr. Elliot describes it as white in the mountains of Carolina. Stamens and style exserted, twice the length of the corolla. Stigma bi-cleft, and didymous. The time of flowering is from July to the last of September.

The dittany is always found on dry soils, in shady and hilly woods, and, in the southern states chiefly inhabits mountainous tracts of land.

MEDICINAL PROPERTIES.

The earliest notice of the medicinal virtues of dittany, is in the work of Schoepf, who describes it as a stimulant and nervine, and as useful in intermittent fevers; in head-ache; and the expressed juice with milk as an application to the bites of serpents. At the time that Schoepf wrote, this country was more uncultivated than

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now, and the bites of venomous serpents more frequent. Hence the country people resorted to a variety of plants for the purpose of healing those bites, and preventing their injurious effects on the system. It appears, that among other supposed specifics, the dittany was considered as useful. As, however, the properties of the plant are not sufficiently active to promise any good in such cases, this part of his account may be passed over. Of its use in intermittents, I know nothing; but in slight fevers and colds, the dittany tea is much used, as I know from observation and enquiry, with a view to excite perspiration. It still retains a considerable share of popular confidence as a nervine, being frequently resorted to, to relieve nervous head-achs, and various hysterical affections. I have never used, nor prescribed dittany tea; but as a warm, grateful, refreshing, and slightly stimulating *tisan*, it may be safely recommended. Mr. Elliot says, an infusion of the leaves of this plant is often given in the southern states, in fevers, with a view to excite perspiration. The dittany belongs to the class of stimulating, warm, and grateful aromatics, which comprises the mints, the monardas, and pennyroyal; and does not, probably, differ essentially in medicinal virtues, from any of these.

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TABLE XLII.

Fig. 1. Represents a flowering specimen, broken off a few inches above the root, of Cunila Mariana.

2. A flower, separated.

3. The corolla, opened.

(All the size of nature.)

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LOBELIA CARDINALIS.

(Cardinal Flout.)

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LOBELIA CARDINALIS.

CARDINAL PLANT. CARDINAL FLOWER.

Germ. Die rothe Kardinals blume.

Dutch. Kardinaals bloem.

Engl. The Scarlet Lobelia, or Cardinals' Flower.

French. Lobelie Cardinale; La Cardinale.

Ital. Fior Cardinale: Cardinalizia.

Span. Escurripa.

Port. Cardealina.

LOBELIA cardinalis. L. Hort. Cliff. 426. Hort. Ups. 276. Roy. Lugdb. 421. Gron. Virg. 134. Mill. Dict. n. 1. sub. Rapuntio. Kniph. Cent. 4. n. 42. Knorr, delic. ii. t. L. 2. Moris. Hist. ii. p. 466. s. 5. t. 5. f. 54. Hern. Mex. 879. t. 880. Houttuyn. Lin. Pfl. Syst. x. p. 65. Willd. Sp. Pl. tom. 1. par. 11. p. 944. Mich. Fl. Boreali-Am. vol. ii. p. 151. Pursh, Fl. Am. Sep. vol. ii. p. 448. Bot. Mag. 320. Rob. ic. 137. Knorr, delic. ii. t. L. 2. Bart. Comp. Fl. Ph. vol. ii. p. 62. Muhl. Cat. 2d ed. p. 22. Nutt. Gen. Am. Pl. vol. ii. p. 77. Drake, Pict. Cin. p. 87. Schoep. Mat. Med. Am. p. 128. Bart. Collections, ed. 3d par. 1. p. 40. Hort. Kew. iii. p. 284. Cutler, in Am. Acad. i. p. 484. Rupp. al. Hall. p. 248. Park. Parad. t. 355. f. 6. Stokes, Bot. Med. vol. i. p. 344.

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LOBELIA.

Gen. Pl. 1363.

Cal. 5-fidus. *Cor.* 1-petala, irregularis, sæpius fissa. *Caps.* infera, 2-3-locularis.

Calix 5-cleft. *Corolla* monopetalous, irregular, on the upper side cleft nearly to its base. *Stamina* united into a tube. *Stigma* 2-lobed; involucrate; involucrum (or indusium) bearded. *Capsule* inferior or semisuperior, 2 or 3-celled, opening at the summit. *Seeds* minute, scabrous.

Obs. Suffruticose, shrubby, rarely arborescent, most commonly herbaceous; leaves alternate; flowers minutely bi-bracteolate, solitary and axillary, or terminal and racemose; raceme bracteate; flowers bilabiate, 5-cleft, upper lip cloven, segments linear, lower trifid, laciniæ ovate or obovate, palate channelled or bidentate, often bimaculate. Tube of the anthers curved at the summit, bearded and perforated, at length admitting the egress of the stigma. Colour of the flowers scarlet, fulvous, or more commonly blue. *Nutt.*

Nat. Syst. Jussieu. *Lobeliaceæ.* (Ann. du mus.)

Nat. Ord. Lin. *Campanaceæ.*

Artific. Syst. Lin. Classis *Monadelphia.* Ordo *Pentandria.*

Lobelia cardinalis; erecta, simplex, pubescens; foliis ovato-lanceolatis, acuminatis, eroso-denticulatis, racemo subsecundo multifloro, genitalibus corolla longioribus. *Willd.* and *Pursh.*

SYNONYMA.

Rapuntium galeatum Virginianum coccineo flore majore. *Moris.*

Rapuntium maximum coccineo spicato flore. *Herm. Max.*

Flos cardinalis Barberini. *Cal. ap. Hern.*

Trachelium Americanum. *Park. Parad.*

Lobelia coccinea. *Stokes.*

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PHARM.

LOBELIÆ cardinalis, *Radix.*

FEW native plants equal in beauty this gaudy flower. Indeed, it is far more showy and elegant than a multitude of exotics so industriously cultivated. Wherever seen, it is greatly admired, and perhaps it only requires to be generally known, in order to obtain a high station in the catalogue of favourite plants.

It is a native of all our marshes and meadows, from one end of the union to the other; and in the autumn, the season of its flowering, it decorates them with its beautiful, long-blooming carmine flowers, forming a gorgeous contrast with the showy blue flowers of its congener, the L. siphilitica. Pursh describes a white variety.

The root resembles that of many species of the genus, as the inflata, siphilitica, Claytoniana, &c. It is perennial, whitish-yellow, fibrous, of a nauseous pungent taste, affecting the fauces in a manner similar to that of the inflata, producing a taste resembling that of tobacco. The stem is erect, pubescent, simple, from two to four feet high, terminating in a long spike of brilliant carmine-coloured flowers, those towards the top coming into bloom successively after the lower ones have decayed, so that the plant continues a long time in flower. The leaves are broad-lanceolate, of a fine shining green,

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and erosely denticulate on the margin. The period of flowering is from the last of July till September, during which time it may be abundantly found in marshes, low meadows, the borders of rivulets, springs, and in watery thickets, in every state in the union.

MEDICINAL PROPERTIES.

This acrid, lactescent plant, is introduced in this work on account of its reputed efficacy as an anthelmintic. Little, however, seems to be known with certainty, of its powers; the chief claim it has to notice as a medicine, being derived from the circumstance of the Cherokee Indians using it successfully to expel worms. The earliest notice of it which has met my eye, is to be found in the valuable little work of Schoepf. That writer intimates that it has been used in the same manner as the L. siphilitica, in siphilis; and though this circumstance may not add to its medical importance, it evinces an early impression of the activity of the plant, and of a similarity in its virtues, to those of the better known species just alluded to. Dr. Drake has enumerated the Cardinal Plant among the anthelmintic vegetable productions of Ohio: but he does not say whether he has ever used it, or ever seen it employed with a view to such an effect on the system. Of the medicinal powers of this plant, I am not able to state any thing from my own experience; but am of opinion that its sensible properties, its reputed powers, and the well known activity of the genus to which it belongs, fully entitle it to further notice.

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TABLE XLIII.

Fig. 1. Represents the upper portion of a flowering specimen of Lobelia cardinalis, the size of nature.

2. An outline of one of the lower leaves, which are largest towards the root, and gradually lessen in size as they are situated higher up on the stem.

3. A flower separated.

4. The petals removed, shewing the column of stamens, and pistil with the calix.

5. The stamens removed, exhibiting the pistil. The filaments are carmine, and the anthers lead-blue.

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Drawn from Nature by W. P. C. Barton

Tanner Vallance, Kearny, N.J.

CHENOPODIUM ANTHELMINTICUM.

(Jerusalem Oak.)

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CHENOPODIUM ANTHELMINTICUM.

JERUSALEM OAK.

Worm-seed. Worm Goose-foot.

Germ. Der wurmtreibender Gänsefuss; wurmsamen, wurmmelde; wurmmelte.

Dutch. Wurmdryvend ganzevoet. Wurm-melde.

Engl. Shrubby Goose-foot.

French. L'Anserine vermifuge. Ansérine anthelmintique.

Portu. Chenopodio vermifugo.

Span. Anserina anthelmintica. Ceniglo antelmentico.

χηνοπόδιον ελμινταγωγον.

CHENOPODIUM anthelminticum. Kalm, Canad. ii. p. 283. Mat. Med. p. 73. Dill. elth. 77. t. 66. t. 76. Houttuyn. Lin. Pfl. Syst. 5. p. 809. Willd. Sp. Pl. vol. i. p. 1304. Pursh, Fl. Am. Sep. vol. i. p. 198. Lin. Sp. Pl. 320. Mat. Med. 190. Amœn. Academ. iv. p. 532. Clayton, Virg. 145. Gron. Virg. ed. n. 39. Schoepf, Mat. Med. Am. p. 31. Barton's Cullen, vol. ii. p. 414. Drake's Pict. Cincin. p. 87. Nutt. Gen. Am. Pl. vol. i. p. 199. Thacher's Disp. 3d ed. p. 180. Dyck. Edin. Disp. p. 226. Wilkins, Med. Mus. vol. v. Coxe's Disp. 3d ed. p. 258. Muhl. Cat. ed. 2d p. 28. Barton's Collec. ed. 3d, par. 1. page 39 and 63. Chapman's Therap. and Mat. Med. vol. ii. p. 70. Bart. Comp. Fl. Ph. vol. i. p. 149. Flore Medicale François. Elliott, Flor. Can. and Georg. vol. i. p. 331. Walt. Fl. Cár. p. 111. Mich. Fl. Boreal. Am. i. p. 173. Hort. Kew. i. p. 313. Berg. p. 177. Merry, account from, in Chir. Rev. xviii. par. ii. Murray, iv. p. 275. Chalm. i. p. 71. Stokes, Bot. Mat. Med. ii. p. 19.

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CHENOPODIUM.

Gen. Pl. 435.

Nat. Syst. Juss. *Atriplices.*
Nat. Ord. Lin. *Oleraceæ.*
Artific. Syst. Lin. Classis *Pentandria.* Ordo *Digynia.*

Sem. 1-lenticulare, superum. *Cal.* 5-phyllus, 5-gonus.
Calix 5-parted, with 5-angles. *Corolla* none. Style bifid (rarely trifid.) *Seed* 1-lenticular, horizontal, covered by the closing calix.—Leaves alternate, often angular in the outline. Flowers glomerate, paniculate. *Nutt.*
CHENOPODIUM anthelminticum; foliis ovato-oblongis, dentatis, racemis aphyllis.
Leaves oblong-lanceolate, sinuate and dentate, rugose; racemes naked; style one, 3-cleft. *Elliot.*

SYNONYMA.

CHENOPODIUM lycopi folio, perenne. *Dill.*
BOTRYS prælta frutescens, &c. *Clayt.* and *Gron.*

PHARM.

CHENOPODII anthelmintici—Herba, succus spissatus, semina, ol. essential.

THIS is a very common looking plant, of repulsive habit, and excessively disgusting odour. It closely resembles two or three species

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of the same genus,* and has been confounded, especially with one, the Chenopodium ambrosioides, from which it is difficult for common observers to distinguish it. The root of Jerusalem oak is perennial. The stem is herbaceous, upright, very much branched, deeply grooved, and from two to four, or five feet high. It is said by some to exceed this stature, though it has not happened to me to meet with it more than three feet high. The leaves are arranged alternately, and somewhat irregularly; are sessile, very conspicuously veined, of a yellowish-green colour; and, under a lens, covered on their under surface, with terebinthinate globular dots. The flowers, as in most of the species, are very small and numerous, being borne on long, axillary, dense, leafless spikes. One of the principal characteristics of this plant is discoverable in this leafless structure of the spikes; and in this respect it differs remarkably from the C. ambrosioides, with which it is so frequently confounded. The calix is monophyllous, five-cleft, persistent, shewing the stamens conspicuously beyond the extremities of the teeth. Filaments white, anthers yellowish-white. Style trifid. The flowers of this plant appear in the beginning of July, and continue till the last of August. I have, however, sometimes found flowering specimens as late as September.

Its favourite haunts are in loose soils, near rubbish and fences. It is, however, not so common a plant as either of the other species, in the middle and northern states. To the south it appears to be fre-

* Chenopodium is derived from χην, (χηνος,) and πους, (ποδος.) Anserine derived from *anser*, a goose; hence the name goose-foot.

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quent and abundant, and to acquire a greater size than here. Pursh says this species "grows plentifully in the streets of Philadelphia."— He must certainly, in this instance, have observed carelessly, else he would have ascertained that it is the Chenopodium ambrosioides which is so common in our streets, by the gutter ways, and in the suburbs on vacant lots among rubbish. The late Professor Barton always considered that plant the C. anthelminticum, as did Pursh.— The least attention, however, to the characters of the two species, will prove that they have both erred in this instance. The odour of the C. ambrosioides, is different from that of the plant under notice. It is much less subtle, pungent and disagreeable, and does not continue so powerful on the dried plant as in the other species.

MEDICINAL PROPERTIES.

The very peculiar odour emanating from every part of this plant, I have already noticed, with a view to point out the distinction between it and the ambrosioides. This odour is so disgusting, that it seems in some measure to detract from the value of the article as a medicine, because of the difficulty of inducing children to swallow any preparation from it. It has been compared to the odour of valerian; which, however, is much more tolerable. The whole plant and the seeds, are alike imbued with the peculiar scent. The medicinal

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preparations are—the expressed juice; the bruised seeds, in an electuary; a decoction of the leaves in milk; and an essential oil, extracted from the seeds. The latter is the most common form of administering the article; and, as it conveys the essential properties of the plant in the smallest bulk, seems to be entitled to a preference to the other methods. In whatever manner it be given, the effect looked for, is an expulsion of worms from the alimentary canal. The anthelmintic virtues of this species of goose-foot, were early noticed by Kalm, Clayton, Schoepf, and others, and are now very generally acknowledged, so that the article constitutes one of the legitimate catalogue of medicines. It is conspicuously noticed in all our dispensatories and works on Materia Medica; and is undoubtedly very estimable.

The essential oil, under the name of *worm seed oil*, enjoys a great share of popular favour, and hence has unfortunately been an object of a very reprehensible cupidity in the adulteration of it. A spurious kind of oil is sold under the above name, which appears to be made from the Chenopodium ambrosioides, with the addition of a considerable proportion of turpentine spirit. This preparation is inefficacious as an anthelmintic, and is easily known by the absence of the very remarkable odour of the true plant, and the oil prepared from its seeds.

Of the expressed juice of the recent leaves, a table spoonful is re-

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commended to be given on an empty stomach morning and evening, repeating the dose till worms be discharged. A wine glass full of the decoction of the plant in milk, in the proportion of a handful of the leaves to a quart of milk, is the dose for a child; and when the oil is administered, from five to eight or ten drops may be given to a child two years old on a lump of sugar, and this continued twice or thrice a day for three days; a mercurial purge is then to be given. If the effect be not produced, and worms be still suspected to exist, the same plan is to be pursued till successful. In this manner I have used this article, and found it efficacious, producing a full discharge of worms; but have not had it in my power to try it in any other form. M. Biètte says, it is given in France, in marmalade or beer, as a vermifuge; and Chalmers particularly recommends an electuary prepared with the pulverized seeds, mixed with honey. Of this a table spoonful morning and night for three successive days, is the dose he recommends for a child.

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TABLE XLIV.

Fig. 1. A flowering specimen, the size of nature, of Chenopodium anthelminticum.

2. A flower, greatly magnified.

3. The fruit enveloped by the calix, magnified.

4. Three seeds, the size of nature.

5. A seed, greatly magnified.

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PANAX QUINQUEFOLIUM.

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PANAX QUINQUEFOLIUM.

GINSENG.

Germ. Fünfblättrige Kraftwurz, Kraftwurzel.
French. Ginseng.
Chin. Jin-chen
Japan. Nindsin; dsindsom.
Tartare. Mandchon Orkoda.
Iroquois. Garent-oquen.
Danish. Ginseng, ginsem.
Portu. Ginsano.
Spanish. Jin-seng.

PANAX quinquefolium. L. Sp. Pl. 1512. Gron. Virg. 147. Mat. Med. 222. Kalm, it. iii. p. 334. Mill. Dict. n. 1. Blackw. t. 513. Regn. Bot. Mich. Am. ii. p. 256. Lafit. Ginseng. 51. t. 1. Catesb. Car. iii. p. 16. t. 16. Vaill. Sex. 43. Trew. ehret. t. 6. f. 1. Houttuyn. Lin. Syst. Pfl. x. p. 333. Pursh, Fl. Am. Sep. vol. ii. p. 191. Catesb. Car. iii. t. 16. Bot. Mag. 1333. Woodville, Med. Bot. i. t. 58. Breynius, Prod. p. 52. Sarrasin, Hist. Acad. 1718. Bourdelin, Hist. de l'Academie, 1797. Jartoux, in Phil. Trans. xxviii. p. 237. Osbeck, China, p. 145. Barton's Cullen. Mat. Med. vol. ii. p. 115. Heberden, Med. Trans. vol. iii. p. 34. Nutt. Gen. Am. Pl. vol. i. p. 176. Muhl. Cat. ed. 2d p. 101. Bart. Comp. Fl. Ph. vol. i. p. 136. Coxe's Disp. ed. 3d, p. 467. Raii. Hist. p. 1338. Cutler, in Am. Acad. i. 492. Fothergill, J. in Gent. Mag.

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xxiii. p. 209. Geoffr. ii. 115. Hill. 589. Stokes's Bot. Mat. Med. ii. p. 157. Lewis, i. 467. Disp. by Duncan, p. 269. Monro, iii. 119. Rutty, p. 219. Spielm. p. 357. Vog. p. 219. Dale, p. 235. Pearson, R. ii. p. 193. Mur. i. 330.

PANAX.

Gen. Plant. ed. Schreb. n. 1604.

Nat. Syst. Juss. *Araliæ.*

Nat. Ord. Lin. *Hederaceæ*—later botanists, *Umbellatæ.*

Artific. Syst. Lin. Classis *Pentandria.* Ordo *Trigynia.* According to Willdenow and others, *Polygamia Diœcia.*

Umbella simplex. *Bacca* cordata, 2-sperma. *Polygama.* Pursh.

Hermaph. umbella. *Cal.* 5-dentatus, superus. *Cor.* 5-petala. *Stam.* 5-styli 2. Bacca disperma infera.

Masculi. umbella. *Cal.* integer. *Cor.* 5-petela. *Stam.* 5. Willd.

Flowers polygamous; umbel simple. *Calix* 5-toothed. *Corolla* of 5-petals. *Berry* inferior, subcordate, 2, sometimes 3-seeded. Calix in the male flower entire. *Nutt.*

PANAX quinquefolium; radice fusiformi, foliis ternis quinatis, foliolis ovalibus acuminatis, petiolatis, serratis.—Willd. and Pursh.

Root fusiform, leaves ternate and quinate, leaflets oval, acuminate, petiolate, serrate.

SYNONYMA.

AURELIANA Canadensis. Lafiteau and Catesby.

ARALIASTRUM quinquefolii folio, (majus ninsin vocatum.) Vaill.

ARALIASTRUM foliis ternis quinquepartitis. Trew.

ARALIA Canadensis. Tourn.

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PHARM.

PAN. quinquefol. *Radix.*

THE root of Panax quinquefolium is about three or four inches in length, and usually of the thickness represented in the plate. It is of a whitish-yellow colour, and consists of one, two, or three tap-shaped portions. It is wrinkled transversely by parallel rugæ or lines, and the whole surface is covered with small, whitish radicles. It is perennial; and each year's stalk leaves, after dying away, an angular mark, as represented in the upper portion of the root figured, where these marks are numerous. It is generally deep-seated in the ground; and growing most commonly at the roots of trees, is not very easily obtained. The stem is erect, terete, green below, but tinged with purplish-red towards the end, whence the petioles arise. These are three in number, diverging in a regular manner, having the flower-stalk situated in the fork, produced by the union at their base with the top of the stem. The petioles are about two or three inches long, round, and as in the genus Aralia, swelling into a kind of knob at their base, where they have a slight motion with each other, and support three compound leaves. The leaflets are mostly five in number, but sometimes only three on one of the petioles, as represented in the plate. I have not seen any specimens with seven leaflets, though botanists state that they are sometimes met with. They are ovate, acuminate, doubly serrate, deep green above,

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paler underneath, and smooth on either side; they are supported by partial footstalks, from a quarter to half an inch in length, flattened and grooved, and tinged with red at the point of union with the general footstalk. The flowers are very small, and borne in a globose umbel on a peduncle, at first short, but afterwards becoming elongated as the flower advances towards fruit: and when the fruit is finally ripe, it attains the length represented in Fig. 7. The involucrum consists of numerous, small, yellowish, pointed leaves, which become reddish when the fruit is mature. The calix is cut into five sharp teeth, and is persistent, being generally found on the apex of the ripe berry. The corolla is white, consisting of five oval, fugacious petals. The stamens in perfect flowers are five in number, crowned with heart-shaped anthers; and the pistils consist of an irregular, inferior, oblong or cordate flattened germ, and two persistent arcuate styles; though occasionally there are three styles, and often but one will be found; in which case the berry will become single, and irregularly shaped, as shown in some of those in Fig. 7. The berries are of a fine vermillion colour, commonly reniform, with an apex or crown, as exhibited in the upper berries of the group in Fig. 7. and, as there represented, the inner flowers are but just expanded, while the immature or green berry, and the ripe fruit are to be found on the same stalk. It is not uncommon to find abortive or barren flowers.

Ginseng is not a common plant in the northern and eastern states

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of the union. It is much more frequent in the western states, always, however, being thinly scattered over a large tract of country. It delights in rich, shady, mountainous regions, where it retires to the deepest recesses of shade and protection, and, as already mentioned, is generally found near the roots of trees. In the vicinity of Philadelphia, it is certainly a rare plant: yet I have been successful in finding it both on the high rocky banks of the Wissahickon creek, under deep shade, and in the unbrageous woods above the falls of Schuylkill on the west side, where it grows in company with other rare plants, as Dentaria diphylla, D. concatenata, Caulophyllum thalictroides, Triosteum perfoliatum, Viola Pennsylvanica, Orchis spectabilis, Obolaria Virginiana, &c. The specimens from which the figure was made, I collected, the flowering one in July, and the fruiting one in September last, at which time I found five individuals of this scarce plant within a quarter of a mile of each other.

The root of this plant is the celebrated Ginseng of the Chinese, which has, till within a few years past, constituted an article of extensive and profitable commerce to the inhabitants of North America. It is not, however, now exported to China, owing either to the quantities obtained in that country, or to some fancied deterioration in the article; and I have been informed by a supercargo, that a quantity carried out to Canton a year or two since in a vessel in which he sailed, was thrown overboard on their arrival there, to avoid pay-

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ment of duties, which exceeded the price the article could command.

Ginseng was formerly considered as the peculiar production of Chinese Tartary, and was not, until the enquiries and investigations of M. Sarrasin,* Lafiteau,† Bartram,‡ and Kalm,§ discovered to exist in North America. The high value of this article in China, and the virtues it was reputed to possess, rendered it a subject worthy of enquiry, whether the plant found in this country was identical with the Tartarian species. Accurate examinations of the two plants, in comparison with each other, soon satisfied botanists of their identity; and the Chinese have long accredited the roots of our Panax quinquefolium, sent to them for consumption, as the veritable Ginseng of Tartary. Accordingly they eagerly purchased it from us, and hence it became an article of extensive traffic with them. Those roots were found to meet with the readiest sale, which were clarified after the manner used in China, to purify or render it transparent.

The most authentic account we have of the Eastern plant which produces the esteemed Ginseng of the Chinese, is by Father

* See Memoirs of the French Academy of Sciences, 1718, where this writer has given a copious account of American Ginseng.

† A Jesuit and missionary among the Iroquois of this country.

‡ John Bartram.

§ Travels.

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Jartoux, a missionary at Pekin, who was licensed to make a journey through the mountains of Chinese Tartary, with a view to acquaint himself with the plant, and the manner of collecting and preparing it. According to this writer, it is found in greatest abundance between the 39th and 47th degree of north latitude, inhabiting the sides of deeply shaded mountains, and the banks of streams of water, and near the roots of trees. In all the situations where he met with it, it seemed to court the deepest shade. The Emperor of China monopolises the privilege of collecting all the Ginseng in his dominions, and with a view to preserve his right unmolested, he encloses and guards with great vigilance, whole provinces. Notwithstanding the rigorous punishments inflicted on those who venture to infringe his right of collecting this precious herb, the inhabitants frequently enter the interdicted tract of country in vast numbers, and load themselves with the roots of Panax, carrying with them for subsistence, during a long time, nothing but parched millet, and sleeping on the bare ground. From those employed by the Emperor himself to collect the roots, he expects a gratuitous portion, of two ounces of the best procured, from each individual; and pays for all above this quantity its weight in silver. This plan insures him an annual receipt of 20,000 Chinese pounds at about one-fourth of its real value in the market. The collectors steep the roots in a decoction of rice or millet, scour them with a brush, and then expose them to the fumes of the boiling liquor by placing them on sticks above it, till they become dry with a

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semi-transparency, or resembling horn. The yellow colour so much valued by the Chinese in this root, is acquired during this process. When dried by fire or the sun's rays, the roots are equally good, but destitute of the yellow colour.

MEDICINAL PROPERTIES.

As it is from the Chinese we first learned the medicinal virtues of Ginseng, it may be proper to specify the effects they attribute to it, previously to giving an opinion as to its real powers. It is almost impossible to conceive of a substance capable of producing a series of more beneficial effects, on the human system, than those which the fashion, prejudice, or caprice of the Mandarins ascribed to the Ginseng. The Chinese physicians have, it is said by Jartoux, written volumes on the root, in praise of its various extraordinary powers, and it forms the base or chief ingredient in all their prescriptions for the highest classes of the population, and is never or rarely administered to the poor, because of its high price* as has already been stated. They consider it as a sovereign remedy in all the diseases incidental to their climate and country; and yield no confidence to any medicine which is not combined with it. They say it gives instantaneous relief in cases of excessive mental or corporeal

* The price at Pekin, is said to have been eight or nine times its weight in pure silver, and sometimes more; according to Kalm, the price at Quebec, in 1748, was five to six livres a pound. The profit in China, must therefore have been immense.

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fatigue, attenuates and dissolves humours, facilitates difficult respiration, invigorates the stomach and digestive organs, sharpens the appetite, allays vomiting, cures hypocondriacal, nervous, and hysterical affections, confirms the tone of the healthy system, and renovates the wasting and faded powers of senility,—in fact, that it is a perfect panacea. Hence, the name of Panax, given to it by Linnæus, a term intended to express this catenation of important virtues.* The Chinese, besides chewing it, use it in decoction, in the proportion of a drachm of the root boiled a long time in a covered vessel, containing a sufficiency of water for a dose. They again add water, and boil it a second time to extract all the virtues of the precious drug.

It appears from Father Jartoux's account,† that he himself

* Among other visionary effects ascribed to it, it is not surprising that they should believe it to be an aphrodisiac. Writers on the Materia Medica, among whom, Cullen is conspicuous, deny that the root has any such effect on the system: and this author, in expressing his discredit of their accounts on the subject, says, he knew a gentleman advanced in years, who chewed a quantity of the root every day, for several years, but could perceive no aphrodisiac effect. *Cullen, Mat. Med.*

† "No body can imagine that the Chinese and Tartars would set so high a value upon this root, if it did not constantly produce a good effect."—"I observed the state of my pulse, and then took half of a root raw; in an hour after, I found my pulse much fuller and quicker; I had an appetite, and found myself much more vigorous, and could bear labour much better and easier than before. But I did not rely on this trial alone, imagining that this alteration might proceed from the rest we had that day; but four days after, finding myself so fatigued and weary, that I could scarce sit on

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could not withhold his credence from their extravagant tales; but the experience of other Europeans, does not by any means coincide with his statement. They, on the contrary, believe it possesses little medicinal worth; and refer the numerous beneficial effects ascribed to it by the Chinese, to the imagination of a people remarkable for their prejudices, civil, moral and religious. As a proof of this it may be mentioned, that they set a higher value upon those roots which have a fancied resemblance to the human form, (as in the root figured in our plate) and ascribe greater powers to them than to those of different shapes. The Chinese name, and that given it by the North American Indians, have both reference to this fancied *figure of a man.* If Ginseng be admitted into the Materia Medica, it must be arranged with demulcents, being nearly allied to liquorice. It will be perceived, on chewing the root, that the first impression on the palate is that of a saccharine substance: and on further mastication it is somewhat mucilaginous and slightly bitter, with a little aromatic flavour. It has little or no odour. According to Lewis, it is much sweeter and more grateful than roots of fennel, which it is said to resemble; and differs remarkably from those roots, in the nature and pharmaceutic properties of its active principles; the sweet matter of the Ginseng being preserved entire in the watery as well as in the spirituous ex-

horseback, a Mandarin who was in company with us, perceiving it, gave me one of these roots; I took half of it immediately, and an hour afterwards, I was not the least sensible of any weariness. I have often made use of it since, and always with the same success. I have observed also, that the green leaves, and especially the fibrous parts of them, chewed, would produce nearly the same effect." *Phil. Trans.* vol. xxviii. p. 239.

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tract; whereas, that of fennel roots is destroyed or dissipated in the inspissation of the watery tincture. He further remarks, that the slight aromatic impregnation of the Ginseng is in a great measure retained in the watery extract, and perfectly so in the spirituous.*

This root may likewise be considered as a gentle and innocent stimulant, producing stomachic effects, and with this view it may be safely and perhaps quite advantageously used. It is not uncommon to use it as a masticatory: and referring to the effects on the stomach, this cannot be esteemed an injurious article.

Alcohol precipitates a gummy mucilage from its solution in water. It contains no resin nor tannin. The extract is said to be a good preparation for medicinal purposes, and is recommended by Dr. Fothergill as a demulcent in the tupis senilis, or tedious chronic cough of old people.

* Mat. Med. p. 325.

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TABLE XLV.

Fig. 1. Represents an entire plant of Ginseng, severed from the root, of the size of nature.

2. The root—this is a common form—sometimes there are three fusiform processes, and often two or three such roots as here figured, connected together.

3. A fertile flower, with an involucrate leaf appended to the pedicel, much magnified.

4. A barren flower, also magnified.

5. A stamen.

6. The calix, with the stamens and styles visible above.

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Drawn from Nature by W. P. C. Barton.

J. B. sc.

ZANTHORHIZA APIIFOLIA.

(Parsley-leaved Yellow-Root, or Yellow-Wort.)

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ZANTHORHIZA APIIFOLIA.

PARSLEY-LEAVED YELLOW-ROOT, OR YELLOW-WORT.

Shrub Yellow-root.

Germ. Sellérieblättrige Gelbwurz.

ZANTHORHIZA apiifolia. L'Herit. stirp. i. p. 79. t. 38. Ait. Kew. i. p. 399. Willd. arb. 414. Willd. Sp. Pl. Tom. 1. par. ii. p. 1568. Mich. Fl. Boreal-Am. vol. i. p. 186. Muhl. Cat. ed. 2d, p. 33. Stokes, Bot. Mat. Med. vol. ii. p. 194. Marshall, Arb. Am. 168. Woodhouse, in New York Med. Rep. ix. 291. Juss. Gen. Pl. p. 234. Elliott, Fl. Geo. and Car. vol. i. p. 376. Barton's Cullen, vol. ii. p. 57. Nutt. Gen. Am. Pl. vol. i. p. 207. Dyck. Edin. Disp. p. 504. Thacher's Disp. ed. 3d, p. 386. Coxe's Disp. ed. 3d, p. 669. Pursh, Fl. Am. Sep. vol. i. p. 212. Barton's Collections, 3d ed. par. i. p. 11.

ZANTHORHIZA.

Gen. Pl. ed. Schreb. 1581.

Nat. Syst. Juss. *Ranunculaceæ.*

Nat. Ord. Lin.

Artific. Syst. Lin. Classis *Pentandria.* Ordo *Polygynia.*

Cal. 0. *Petala* 5. *Nectaria* 5-pedicellata. *Caps.* 5. Monospermæ.

Calix none. Petals five. *Lepanthia* five, pedicellate. *Capsules* five to eight, 1-seeded, semi-bivalve.

ZANTHORHIZA apiifolia; frutex humilis tripedalis. Folia alterna impari-pinnata, foliolis ovato-cuneiformibus, inciso-dentatis, terminali trilobo inciso. Flores atroviolacei paniculati terminalis. W.

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SYNONYMA.

ZANTHORHIZA tinctoria. Woodhouse.
ZANTHORHIZA simplicissima. Marshall.
ZANTHORHIZA Marbosia. Bartram.

PHARM.

ZANTHORHIZÆ apiifoliæ. Cortex et lignum radicis. Cortex caulis.

THIS small shrub is from two to three feet high; and is a native of the southern atlantic states, where it is principally restricted to the mountains. It is abundant on the banks of the Ohio and in the upper districts of Carolina, near the mountains. The root is horizontal, sending off numerous suckers. The stem is simple, the bark smooth, but covered on the young shoots with angular fissures, and the wood is bright yellow. The leaves are triternate, simply or doubly pseudo-pinnate, crowded together at the upper portion of the stem. Leaflets broad-lanceolate, or ovate-lanceolate, acute, doubly serrated, sessile, of a yellow-green colour, smooth above, and slightly pubescent underneath, supported by long petioles swelling at the base into an amplexicaule sheath. Flowers in divided racemes, drooping below the leaves, of a dark purple colour, with obovate, bilobed, deep purple nectaries. Germs superior, flattened, from five to nine in number, crowned by styles which vary from two to eight. Capsules inflated and compressed, one-celled, two-valved, opening at the apex. Seeds oval

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and flattened. The period of florescence is April. The specific name *tinctoria* was given to it by the late Professor Woodhouse in allusion to its dying property, that of Marbosia by Bartram in honour of M. de Marbois—but as L'Heritier's name seems most appropriate I have adopted it.

MEDICINAL PROPERTIES.

The medical virtues of this shrub are those of a very pure tonic bitter. Both the wood and bark of the root may be used, but only the bark of the stems, according to Dr. Woodhouse. The shrub contains a gum and a resin, both intensely bitter; the resin is more abundant than the gum.

Dr. Woodhouse used the powdered stem and root in the dose of two scruples for an adult, combined with other remedies, in many of those cases in which bitters are recommended. It agrees well with the stomach, and as a strong and pleasant bitter, it may be considered as a useful addition to the Materia Medica. It was the opinion of the late Professor Barton, that the Zanthorhiza was a more intense bitter than Columbo. He thought the bitterness of the wood of the root was not so great as of the bark. Sulphat of iron does not alter the colour of an infusion of the bark of this root in hot water. Yet its after taste of acrimony or pungency on the palate seems to justify the opinion, that it is a less pure bitter than Columbo—though very nearly allied to it.

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Œconomical uses.

The yellow juice of this plant imparts a drab colour to woollen cloth, and a fine yellow to silk; neither cotton nor linen, however, imbibes any of it. With a proper mordant, it would in all probability be a valuable native dye. The infusion in hot water is very yellow.

The watery extract of the grated roots mixed with alum, and added to Prussian blue, was used by Mr. John Bartram, for colouring plants and the green plumage of birds. This mixture is said to have produced a more lively colour than the mixture of Prussian blue and Gamboge, and stands well in the shade, but acquires a dull olive colour on exposure to heat or a strong light.

TABLE XLVI.

Represents a flowering twig of Zanthorhiza apiifolia, of its natural size, drawn from a specimen taken from Bartram's Garden, Kingsess.

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Drawn from Nature by W. P. C. Barton.

Tanner, Vallance &c.

LOBELIA SIPHYLITICA.

(Blue Cardinal Plant.)

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LOBELIA SIPHILITICA.

BLUE CARDINAL FLOWER.

Blue Lobelia, or Cardinal Flower.

French. Lobelie syphilitique; Cardinale bleue.
Italien. Lobelia sifilitica.
Span. La siphilitica.
Germ. Blaue Kardinals blume, Gemeine Lobelie.
Engl. Blue cardinal's flower.
Dutch. Pokkige Lobelia.
Danish. Kopper-Lobeliæ.

LOBELIA siphilitica. L. Hort. Cliff. 426. Mat. Med. 194. Amœn. Academ. iv. p. 527. Gron. Virg. 134. Kniph. Cent. 8. n. 60. Moris. Hist. ii. p. 466. s. 5. t. 5. f. 55. Dodart. Mem. 297. Rob. ic. Houttuyn. Lin. Pfl. Syst. x. p. 66. L. Sp. Pl. 1320. Mant. 482. Hort. Kew. iii. 284. Woodville, i. 177. t. 63. Drake's Pict. Cin. p. 87. Bart. Prod. Fl. Ph. p. 30. Bart. Comp. Fl. Ph. vol. ii. p. 61. Boerh. i. 250. Chisholm, 25. Lew. Disp. by Dunc. 249. Pearson, J. account from, in Ann. Med. Lustr. II. i. 271. and Chir. Rev. vii. 161. Barton's Collections, ed. 3d, part i. p. 56. Lew. ii. 73. Monro, iii. 160; Sold. ii. 243. Murr. i. 514. Stokes, Bot. Mat. Med. i. p. 242. Rush, i. 31. Schoepf, 128. Vog. 108. Mather, in Phil. Trans. Abr. by Jones, part ii. 160. and by Hutton, vi. 86. Chapman, Elem. Therap. and Mat. Med. i. p. 272. Mich. Fl. Boreal-Am. vol.

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ii. p. 151. Elliot, Fl. Car. and Geor. vol. i. p. 266. Muhl. Cat. ed. 2d, p. 22. Pursh, Fl. Am. Sep. vol. ii. p. 447. Jacq. ic. 3. t. 597. Dyck. Edin. Disp. p. 306. Coxe, Disp. ed. 3d, p. 404. Thacher's Disp. ed. 3d, p. 271. Walt. Fl. Car. p. 218. D. Dodart. Memoirs, &c. p. 297. Nutt. Gen. Am. Pl. ii. p. 77.

LOBELIA siphilitica; erecta, simplex, pistilla; foliis ovato-lanceolatis subserratis, racemo folioso, calicibus hirsutis, sinubus reflexis. *Willd.* and *Pursh.*

Erect, simple, a little hairy; leaves ovate-lanceolate, subserrate, raceme leafy; calices hirsute, with the divisions reflexed.

SYNONYMA.

RAPUNTIUM Americanum; flore dilutè cœruleo. Tournefort and Boerh.

RAPUNCULUS galeatus Virginianus, flore violaceo-majore. Moris.

RAPUNCULUS Americanus, flore cœruleo. Dodart.

LOBELIA reflexa. Stokes.

TRACHELIUM Americanum, flore cœruleo. Rob. ic.

TAN tuttipang. Mather, in Phil. Trans.

PHARM.

LOBELIÆ siphiliticæ. *Radix.*

QUAL. lactescens, acris, nauseosa.

USUS. diuretica, pellens, purgans, emetica.

DESCRIPTIO UBERIOR.

Caulis simplex erectus pedalis, angulis pilis rigidulis a foliorum marginibus decurrentibus. *Folia* alterna sessilia latius lanceolata serrata scabriuscula. *Flores*

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axillares solitarii brevissime pediculati coerulei. *Calix* serrato-denticulatus; laciniis lanceolatis, sinubus reflexis, germen tegentibus (ut in Campanulis Medio, etc.) *Corolla* coerulea angulata, laciniis subæqualibus carina ciliatis, palato 2 gibbositatibus. *Mant.* 482.

We have already figured and described two species of the genus to which this fine plant belongs; and, as in them, the root of this one is perennial, fibrous, acrid, and nauseous. The stem is erect, angled and simple, hirsute above, destitute of pubescence below, and from one to three feet high. It is sometimes though rarely branched. The leaves are crenulate, larger below than above; those near the root, and the lower portion of the stem, are lanceolate, elliptical, sessile, strongly veined, somewhat shining, and irregularly and finely denticulate on the margin. Those above are lanceolate and also denticulate, veined and smooth. As in the cardinal plant, the leaves gradually diminish in size, particularly in length, from the bottom upwards, giving the plant a pyramidal appearance when in full bloom. The flowers are supported on short bracteated pedicels, arranged on long, leafy, terminal, and sometimes axillary spikes. The flowers are Prussian blue, blended with white on the under side, the buds being tinged with yellow, and the inner side of the laciniæ of the corolla of a darker blue. The calix consists of five hastate, hispid segments, ciliated on the margin, and reflexed at either side. The bracteal leaves, at the base of the pedicels, are likewise ciliated. The filaments are lead-blue, the anthers white, and projecting conspicuously inside of the upper segment of the corolla. The flowers are

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apt to fade white, without great care, in drying for the herbarium. This elegant plant displays its flowers in August and September, and is a very common inhabitant of meadows, the margins of rivers and small waters, and the borders of watery thickets.

MEDICINAL PROPERTIES.

Lobelia siphilitica is a lactescent, acrid, and rank-smelling plant, particularly the root, which alone, seems to be useful for medicinal purposes. It has found its way into the works on Materia Medica, by its reputed efficacy in curing siphilis among the Indians of this country. The use of the plant with this view, was long preserved as an important secret among them, until it was purchased by sir William Johnson, who made it known to Europeans, and since then it has been repeatedly tried under every favourable circumstance by physicians of eminence,* and the result has been, that its reputed antisiphilitic powers are no longer credited. Indeed, it seems probable, that the Indians themselves did not trust in the cure of true siphilis to this herb, but used, in conjunction with it, the bark of Wild cherry, (Prunus Virginiana) the root of May-apple, (Podophyl-

* Desbois de Rochefort and others have administered this root in Siphilis without the least success: and Pearson, in his work on the effects of various articles in the cure of siphilis, corroborates the worthlessness of the herb in that disease. I have myself used it in more than five or six cases, without perceiving the slightest benefit.

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lum peltatum) and many other plants.* They, in general, had recourse to the advice of Europeans, when attacked with this disease, not reposing entire confidence in their own inefficient plan of treatment. Dr. Barton was of opinion that the plant had cured gonorrhœa, and speaks confidently on this point, believing that it operated beneficially in this complaint, by the diuretic virtues, which it certainly possesses. Dr. Chapman† mentions that some of the western physicians resort to it for the cure of dropsy with success; but does not himself speak of any personal experience on this point. It appears to act frequently as a sudorific, a purgative, and an emetic.

The root is to be given in decoction in the proportion of half an ounce to one or two pounds of water; and also in extract, of which from five to twenty grains made into pills, may be given. It is necessary to omit the medicine when purging or vomiting is induced. The directions given for its use, with a view to cure siphilis, are as follow: "a decoction is made of a handful of the roots in three measures of water. Of this, half a measure is taken in the morning fasting, and repeated in the evening; and the dose is gradually increased till its purgative effects become too violent, when the decoction is to be intermitted for a day or two, and then renewed till a perfect cure is effected. During the use of this medicine, a proper regimen is to be enjoined, and the ulcers are also to be frequently washed with the de-

* Barton's Collections. † Elem. Therap. and Mat. Med.

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coction, or if deep and foul, to be sprinkled with the powder of the inner bark of the New Jersey tea-tree, (Ceanothus Americanus.)"* This plan is said to cure the disease in a very short time; but we have already given sufficient reasons for want of confidence in it.

TABLE XLVII.

Fig. 1. Represents the upper portion of Lobelia siphilitica, in flower.

2. An outline of a leaf near the bottom.

3. A flower separated, with the leaf always appended to the peduncle.

4. The corolla, cut open.

5. The calix, with the column of stamens and pistil.

6. The pistil and germ.

(All the size of nature.)

* Woodville, Med. Bot.

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PHYTOLACCA DECANDRA.

(Poke.)

PHYTOLACCA DECANDRA.

POKE.

Pigeon-berries. Garget. Poke-weed. Cocum. Jalap Cancer-root. Skoke, or Coakum. American-Nightshade.

Germ. Gemeine Rermesbeere. Die Americanische Scharlachbere oder Rermesbeere; Americanischer Nachtschatten; Virginische Purgaze.

Dutch. Tienmannige lakplant.

Engl. The branching Phytolacca or Virginian Poke. The mountain Calalæ or Pök-weed.

French. Morelle à grappes; Grand morelle des Indes; Vermillion plante; Herbe de la laque; Mechoacan du Canada; Rasin d'Amerique.

Italian. Pianta lacca.

Span. Hierba carmin.

PHYTOLACCA decandra. L. Hort. Cliff. 177. Hort. Ups. 117. Mat. Med. 118. Gron. Virg. 161. Mill. Illus. Reg. Bot. Blackw. t. 515. Du Roi. Harbk. ii. p. 7. Hal. Helv. n. 1007. Dill. elth. 318. t. 339. f. 309. Mill. Dict. n. 1. Pluk. Alm. 353. t. 225. f. 3. Houttuyn. Lin. Pfl. Syst. vi. p. 693. Bart. Collections, 3d ed. par. ii. p. 27. Bart. Prod. Fl. Ph. 52. Bart. Comp. Fl. Ph. i. p. 219. Pursh, Fl. Am. Sep. vol. i. p. 324. Mich. Fl. Boreal-Am. vol. i. p. 278. Drake's Pict. Cin. p. 85. Stokes, Bot. Mat. Med. vol. ii. p. 566. Bry. 126. L. Sp. Pl. 631. Hort. Kew. ii. 122. Bot. Mag. t. 931. Cutler, 447. Dill. Hort. 318.

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t. 239. f. 309. Boerh. ii. 70. Sloane, Cat. 84. Raii. Hist. 662. Park. theatr. 347. Munt. Phyt. 23. t. 112. Dale, 168. 173. Schoepf, 71. Vog. 114. Murr. iv. 335. Geoffr. suite, i. 403. Lew. Disp. by Duncan, 345. Chom. 787. Rush, i. 259. Clayt. in Ph. Tran. abr. by Hutt. viii. 331. Amœn. Academ. vol. iv. p. 524. Muhl. Cat. ed. 2d, p. 47, Puihn. Mat. Med. Venenar. p. 93. Nutt. Gen. Am. Pl. vol. i. p. 293. Coxe's Disp. ed. 3d, p. 477. Edin. Disp. by Dyck. p. 337. Big. Med. Bot. vol. i. p. 39. Thach. Disp. ed. 3d, p. 312.

PHYTOLACCA.

Gen. Pl. 800.

Nat. Syst. Juss. *Polygoneæ.*

Artific. Syst. Lin. Classis *Decandria.* Ordo *Decagynia.*

Cal. 0. *Pet.* 5-calycina. Bacca supera, 10-locularis, 10-sperma.

Calix 5-leaved, petaloid. Berry superior, 10-celled, 10-seeded.

PHYTOLACCA decandra; foliis ovatis utrinque acutis, floribus decagynis.

Willd. and *Pursh.*

Leaves ovate, acute at each end; flowers decandrous decagynous.

SYNONYMA.

PHYTOLACCA Americana; majori fructu. Clayt. Chom. Boerh.

PHYTOLACCÆ vulgaris fructus et flores. Dill.

SOLANUM racemosum Americanum. Raii, Sloane, Pluk.

SOLANUM magnum Virginianum rubrum. Park.

BLITUM Americanum. Munt.

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PHARM.

PHYTOLACCÆ decandræ. Herba recens, succus, radix, baccæ.

THE Poke is a well-known, large, rank plant, growing abundantly in every part of the United States, in wastes, rubbish, and near fences and road sides. It grows to the height of six or eight feet, and sometimes attains even a greater stature. The root is very large, often five or six inches in diameter, and consists of a solid, but soft, fleshy, fibrous mass of whitish colour. It is branched in one or two large portions; when dried, it becomes light and spongy. The stem is thick, round, much branched and very glabrous; the branches are large, and spread in various directions, giving the plant a breadth of four or five feet. The leaves are ovate, narrowed at each end, acute, strongly veined on the under surface, and very smooth on both sides. They are frequently tinged near the base and along the costa with purple, and when old are quite reddish. Those situated on the lower portions of the stem and branches are very large, often nine or ten inches in length; the upper are considerably smaller; and all of them are supported on short foot-stalks. The stems are at first green, but become afterwards of a fine purple hue. The flowers are small, numerous, and borne on long racemes, sometimes erect, and often drooping, as is the case with the berries. The corolla consists of five small, ovate, concave petals, folding inwards; there is no calix. Stamens, ten in number, shorter

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than the petals, with double white anthers. The pistils are ten, consisting of a flattened, globose, ten-furrowed green germ, and ten short recurved styles. The berries are deep blackish purple, and very shining, crowned with the persistent styles. They are full of a fine purplish red juice. The pedicels of the flowers are variously coloured, being sometimes white, green and yellow, and often red; and when the berries are quite ripe, are of a fine carmine hue. This plant commences flowering in July, and sometimes continues in bloom during the whole summer. It is common to find flowers, and the green and ripe berries for a length of time, on the same stalk. It is a native of the South of Europe, some parts of Africa, and North America.

CHEMICAL ANALYSIS.

We are indebted to M. Braconnot* for an excellent chemical analysis of this vegetable. According to this chemist, the Poke contains an unusual quantity of vegetable alkali in neutral combination with a peculiar acid allied to the malic, but in his opinion, a mean between this and the oxalic acids. In his experiments with the colouring matter of the berries, M. Braconnot discovered that a yellow liquor, formed by the combination of the purple juice of the ripe berries and lime water, was a very delicate test of the presence of an acid.

* Annales de Chimie, vol. lxxii.

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A few drops of lime water added to the juice produces a change to a yellow colour; the purple is again reproduced by a similar portion of acid. M. Braconnot's comparative experiments with respect to the sensibility of litmus paper and this yellow liquor, resulted in the fact, that one-fourth the number of drops of weak acid were sufficient to restore the pristine purple of the yellow compound, which were necessary to redden litmus paper. The yellow liquor, however, must be used as soon as made, as it changes in a short time. For a more detailed account of the chemical analysis, I refer to the memoir of M. Braconnot, already quoted, and to the dissertation of Dr. Shultz.

Œconomical uses.

The turiones of this plant are cut near the ground when about three or four inches high, and brought in great abundance to the Philadelphia market, as a table vegetable. These young shoots, when they have had a rapid growth, and the acrid juices of the plant have not become evolved by air and light, are innocent; and, by some persons esteemed delicious. When well boiled and dressed in the same manner as asparagus, they are easily digested. Yet this practice is not without danger; and I have known an instance in a family in Lancaster, in which very violent narcotic effects were induced in several persons who had eaten of the young

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shoots of Poke. The probability is, that in the instance alluded to, the shoots were too old, and had acquired the proper active juice of the plant.

It is common to make a red ink from Poke-berry juice, with the addition of alum. The colour, however, is evanescent, and the alum does not appear to be a sufficient mordant. We are indebted to Dr. Adam Seybert, the author of American Statistics, for a discovery of the means of fixing the colour of these berries. Yet, I am sorry to be unable to refer to his experiments, which were only published in a newspaper, not known to me; and the author being absent, I cannot obtain any information on the subject.

MEDICINAL PROPERTIES.

Many medicinal virtues have been attributed to Poke: but we shall select those only which are prominent and authenticated. The tincture of the ripe berries in brandy, seems to have acquired a well founded reputation as a remedy for chronic and siphilitic rheumatism, and for allaying syphyloid pains; and its effects have been compared to those of the volatile tincture of guaiacum. It is confidently recommended in cases which indicate the use of that article, as a safe and efficacious remedy, under judicious management. The late Professor Barton believed it to be a more valuable medi-

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cine than the guaiacum—and recommended, as did Dr. Shultz,* the simultaneous exhibition of calomel and other preparations of mercury with it. He says he has "employed the ripe juice of the berries, inspissated to the state of an extract, in some cases of scrophula;" but does not state the result of his trials. The tincture of Poke is much used in this city by some highly respectable practitioners, in rheumatism, and with undiminished confidence in its efficacy.

Poke has had no inconsiderable reputation as a remedy for cancer; but, notwithstanding some high names were enlisted in support of the accounts of its efficacy, it has deservedly lost its character as a cancer-remedy. It is most likely that it was found serviceable in ill-conditioned, sluggish ulcers, which are too frequently mistaken for real cancer, and thus give undue reputation to the curative article employed. That Poke in extract, and in form of ointment, has done good in obstinate cutaneous affections, there seems no fair reason to doubt. It is true the accounts of the efficacy of these preparations, have been greatly exaggerated; but still there remains a sufficient portion of respectable testimony, to accredit the claims of the article as a good local stimulating remedy in such affections. That it has cured obstinate cases of tinia capitis, is not probable; for it is not reasonable to suppose that this very pertinacious disease of the scalp, would yield to an article of so little activity in local applications, as either the ointment or extract of Poke.

* See Inaugural Diss. Univer. Penn.

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Some of the physicians of the eastern states, repose great confidence in the pulverised root of Poke, as an emetic. They inform us that in doses of ten or twenty grains, it operates as a certain vomit. It is certain that Poke root produces emesis and catharsis violently, as many active semi-narcotic plants do: and it is not to be doubted that in some instances, convulsions and narcotic symptoms have supervened to the violent vomiting and purging, produced by the internal use of Phytolacca. Indeed, the convulsions then induced have been long noticed, and Puihn particularly mentions this effect, as well as the drastic purgative power of the root. The slowness of the emetic operation of Poke, together with the ambiguous narcotic symptoms accompanying it, will, in all likelihood, prevent any general recourse to the article as an emetic.

It is to be regretted that Poke is mentioned in Thacher's Dispensatory, on the authority of some physicians of Savannah, to be adequate to the cure of siphilis *without the use of mercury*, thus adding another ideal virtue to a plant already extolled beyond its medicinal worth. Unfortunately the preposterous idea of curing this virulent disease by means of *herbs alone*, (sarsaparilla, for instance) has found some few proselytes in this country: but surely the idea of substituting Poke for mercury, ought not to have obtained the countenance of the respectable compiler of the American New Dispensatory.

The extract of Poke is much used by country practitioners, as a discutient in indolent tumours: and it is said they are in the habit of in-

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fusing the root in wine, in the proportion of an ounce of the former to a pint of wine, and using it to produce vomiting, in the dose of two spoonfuls. A strong infusion of the leaves taken internally, has also been recommended in hemorrhois. On its efficacy here, however, I cannot help suspecting, there is but little reason to rely. The Poke ointment is made by boiling the fresh leaves in hogs lard and bees wax, and straining while hot; or it may be made by powdering the dried leaves, and mixing the powder with lard or simple cerate. The tincture may either be made by infusing the ripe berries in brandy or wine, or by dissolving the extract of the leaves in their green or dry state, in spirit.

An extract may be made by slowly evaporating the expressed juice of the recent leaves collected in July, to a proper consistence.

The ointment and extract produce a sense of heat and smarting, when first applied.

The roots should be collected for medical use in the autumn, and sliced transversely; then dried and kept in covered bottles. As they lose their activity in time, a fresh supply should be annually collected. The leaves ought to be gathered when the berries are ripe, and used as already directed.

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TABLE XLVIII.

Fig. 1. Is a flowering twig of Phytolacca decandra, with a bunch of green berries, taken from the upper portion of a plant.

2. A cluster of ripe berries, with a portion of the coloured stem, taken from the lower part of the same plant.

(Both the size of nature.)

3. The germ, stamens and pistils, magnified.

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Drawn from Nature by W.P.C.Barton

J.Boyle sc.

LIATRIS *DUBIA*

Blue Blazing Star.

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LIATRIS *DUBIA.*

BLUE-BLAZING STAR.

Rattle-snake's master, Button snake-root.

LIATRIS.

Gen. pl. 1263.

Recept. nudum. *Pappus* plumosus, coloratus. *Cal.* oblongus, imbricatus.
Nat. Syst. Juss. *Corymbifera.*
Artific. Syst. Lin. Classis *Syngenesia.* Ordo *Aqualis.*

LIATRIS *dubia;* radix tuberosa, radiculis comosis. Caulis rectus, lineatus, hispido-pubescens. Foliis linearibus lævibus, punctatis, imis multoties majoribus; superioribus, basi ciliatis. Spica longa floribus pedunculatis. Pedunculi pubescenti uniflori elongati, foliolis aliquot instructis. Calix oblongus vel sub-globosus; squamis lanceolatis, subacutis, erectis, verrucoso-punctatis, imis ciliatis. Corollæ tubulosæ, 5-fidæ; laciniis lanceolatis. Semina oblonga, angulata, basin versus attenuata. B.

THIS plant is one of a genus nearly all the species of which vary considerably, particularly in those marks usually supposed charac-

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teristic, as the sessile or pedicellated flowers. After a very careful examination of the specimen from which the figure was drawn, by the descriptions of Pursh, Michaux, and Willdenow, together with a close scrutiny of all the specimens of the genus in the Muhlenbergian Herbarium, I cannot, to my own satisfaction, refer the plant to any of the named species. Yet it is most probably not remote from the *spheroidea*, *scariosa*, or *graminifolia*. In this hesitation I have thought it best to add the doubtful mark, and let the figure and description I have given, establish its proper place among the described species.

The root is tuberous, and sends off a great number of long, slender, whitish, dry, fibrous portions. The stem is erect, in the specimen figured, three and a half feet high, striated with whitish lines, covered with a sparse semi-hispid pubescence. The lower leaves are longer, and much wider than the upper, somewhat arcuate, very much dotted or pitted, glabrous, entire, sessile, and not scabrous on the margin. The costa is prominent, yellowish. The upper leaves are much smaller and quite linear, ciliated for the most part at the base, but some of them ciliated two-thirds of their length. The spike is very long, and leafy, the flowers being situated on long, leafy, pubescent pedicels. The calix is somewhat cylindrical or sub-globose, the scales lanceolate, subacute and erect, slightly spreading at the bottom where the lowermost scales are ciliated. The corolla is tubulous and divided into five lanceolate, acute segments; and, together with the long, exserted anthers, are of a most brilliant and delicate violet colour.

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All the leaves, peduncles, and calix scales are deeply pitted or dotted, and in the dried specimen, have a verrucose appearance. The plant flowers in the last of September.

MEDICINAL PROPERTIES.

All the tuberous rooted species of the genus Liatris are active plants, and seem to be uniformly diuretic. The Liatris macrostachya is already noticed in Dr. Barton's Collections, and Schoepf describes the L. scariosa, by the name of Rough-root lobelia, as an acrid, sub-bitter plant, possessed of diuretic virtues, and as useful in Gonorrhœa. He states that the root has been prescribed with this view in weak decoctions, to considerable extent. Pursh says the same plant, and L. squarrosa, are known among the inhabitants of Virginia, Kentucky, and Carolina, by the name of "Rattle Snake's Master;" and tells us, that when bitten by that animal, they bruise the bulbs of these plants, and apply them to the wounds, while at the same time they make a decoction of them in milk, which is taken inwardly, in the same manner as Prenanthes serpentaria. I have also two specimens of Liatris from Mr. Collins, the one received from Mr. Lyon, and collected by him in Ohio and Tennessee, under the name of Rattle-snake plant, the other collected by Mr. Collins himself, in Cove, or North Mountain, in the western part of Pennsylvania, last summer, where

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he learned the plant was used for curing the bite of the Rattle-snake. These two specimens do not materially differ from the plant here figured, which was received by me, under the same name of "Rattle-snake root." They are not improbably varieties of the L. scariosa, graminifolia or spheroidea; but neither of them agrees well with the description of scariosa.* For the present, these remarks are thrown together principally with a view to elicit information respecting the medicinal species of this beautiful genus of plants; and as the plate here given, is a supernumerary one in this number, the above imperfect account will, it is hoped, be excused.

* The following remarks are from Plukenet, accompanying his Fig. of L. scariosa: Fig. 4. Tab. 177.

Eupatoria adfinis Americana bulbosa, floribus scariosa, calicibus contectis.

Huic in capitulis saltem persimilis exhibitum, in Hist. III. exic. Reech. sub nomine Xardro, ut bidesis, pag. 196. Planta pappescens non lactescens Virginiana. D. Banister.

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TABLE XLIX.

Fig. 1. Represents a portion of Liatris *dubia*, near the root, of the natural size.

2. An upper portion of the same specimen, also the size of nature.

3. A flower separated, very little magnified.

4. The stamens.

5. The same, greatly enlarged.

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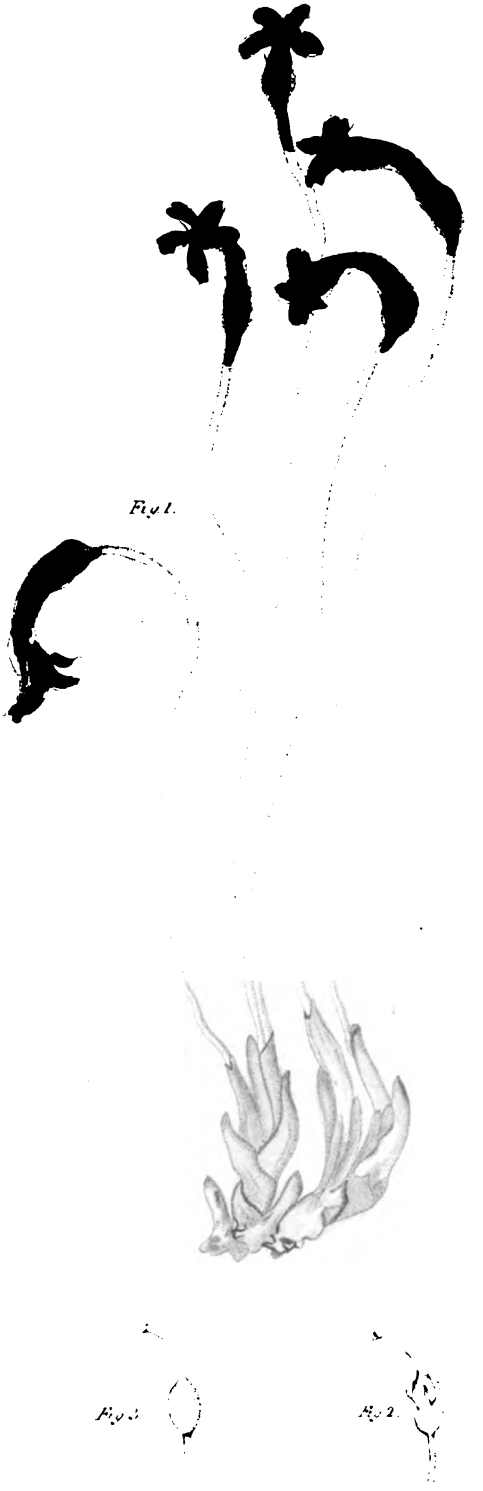

OROBANCHE UNIFLORA.

(One-Flowered Cancer-Root.)

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OROBANCHE UNIFLORA.

ONE-FLOWERED CANCER-ROOT.

Germ. Einblumige Sommerwurz.

OROBANCHE uniflora. L. Sp. Pl. 882. Walt. Car. 166. Rai. Supp. 595. Gron. Virg. 70. Pluk. Mant. 89. t. 348. f. 3. Mitch. 25. Houttuyn. Lin. Pfl. Syst. 8. p. 152. Mich. Fl. Boreal-Am. vol. ii. p. 26. Muhl. Cat. ed. 2d, 61. Pursh, Fl. Am. Sep. vol. ii. p. 431. Willd. Sp. Pl. vol. iii. par. 1. p. 352. Bart. Comp. Fl. Ph. vol. 2d, addenda. Bart. Prod. Fl. Ph. p. 66.

Genus Orobanche (see Orobanche Virginiana, p. 25.)

OROBANCHE unifflora; scapis nudis unifloris calice ebracteato, corolla recurvata.

Willd. and *Pursh.*

Scapes naked, one-flowered; calix without bracts, corolla recurved.

SYNONYMA.

OROBANCHE aut Helleborine affinis Marilandica, &c. Raii.

DENTARIA s. Aublato cordi affinis, &c. Gron.

GENTIANA minor aurea, &c. Pluk.

APHYLLON. Mitch.

PHARM.

OROBANCHÆ unifloræ. *Radix.*

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One species of this genus has already been figured and described in this work, under the name of Cancer-root; and a second is now noticed for reasons presently to be given.

This little plant, like its congener just alluded to, is a leafless parasite on the roots of trees and shrubs. It is above a span high, several scapes proceeding from the same root. The root is gibbous or irregularly knobby, and sheathing the scapes at their origin from it. It is of a yellowish colour. The scapes are tortuous and round, about the thickness of bobbin, and finely pubescent every where, but especially towards the upper part; and of a delicate yellowish-white hue, almost imperceptibly tinged with pink near the flower. The flowers are secund, or leaning towards one side, snow-white, consisting of a recurved monopetalous corolla, and a five-leaved ebracteate calix, also white, both finely and densely pubescent. The corolla is divided into ovate, obtuse segments, on the lower of which, two yellow diverging nectaries are perceptible, adding a little relief to the white flower. The filaments of the stamens are white, and the anthers yellowish. The germ is ovate, glabrous, and of a tan-colour. This singular little plant delights in very shady situations in rich woods, and has but a very slight attachment by its root, to the substance on which it grows; it is in flower about the beginning or middle of May, and soon fades when culled. It is, when somewhat advanced, of a yellowish hue, but I have always found the plant in its fresh state, of the colour described above. Pursh mentions that it is but two or three inches high, of a tan-colour, and the flowers pale-purple. This is much smaller than

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I have been accustomed to meet with it (and in this neighbourhood it is far from being rare) and I have never seen specimens having purple flowers. It is likely the one described by Pursh, is a variety. It must be noticed, however, that Gronovius, Willdenow and Plukenet, describes the flowers as pale blue.* It is possible, therefore, that the plant growing in this vicinity, and which I have figured, may be a white variety of the blue-flowered species. Which is the type of the species I cannot undertake to decide.

MEDICINAL PROPERTIES.

I have discovered, since the publication of Nos. 5 and 6, in which Orobanche Virginiana is described, that the present species is collected with the other, and used with it under the name of Cancer-root. My enquiries have satisfied me, that those who use the Cancer-root already described, attribute equal power to the present species. I have therefore, given a figure of the plant in an additional plate, more with a view to direct attention to it, than in the belief, that it has yet any undisputed claim to be ranked among medicines. Yet, I am inclined to suspect most of the species of this genus to be possessed of active properties.

* Orobanche uniflora—Vagina spathacea, Flos pallide cœruleus, cernuus. Sp. Pl.

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TABLE L.

Fig. 1. Orobanche uniflora, in flower.

2. The calix, with the germ and style.

3. The germ and style, separated.

(All the size of nature.)

THE END.

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INDEX

TO THE

SYSTEMATIC NAMES AND SYNONYMS.

The synonyms are in Italics.

A

Aristolochia serpentaria - - 41
Acorus Calamus - - - - 63
Asarum Canadense - - - 85
Aristolochia pistolochia - - - 41
Acorum legitimum - - - 63
Anapodophyllum Canadense - - 9
Asarum latifolium - - - 85
Asarum Carolinianum - - - ib.
Anemone Grönlandica - - - 97

B

Baptisia tinctoria - - - 53
Blitum Americanum - - - - 213

C

Coptis trifolia - - - - 97
Cunila mariana - - - 171
Chenopodium anthelminticum - 183
Calamus aromaticus - - - 63
Cortusa Americana - - - 159
Cunila pulegioides - - - 165
Calamintha erecta, &c. - - 171

E

Eupatorium perfoliatum - - 125
Epifagus Virginiana - - - 25
Eupatorium Virginianum - - 125
Eupatorium connatum - - ib.

Digitized by Google

F

Frasera Walteri - - - 103
Frasera Caroliniensis - - - ib.
Frasera officinalis - - - ib.
Frasera verticillata - - - ib.

G

Gyromia Virginica - - - 143

H

Hydrastis Canadensis - - - 17
Heuchera Americana - - 159
Hedeoma pulegioides - - - 165
Hydrophyllum verum, &c. - - 17
Helleborus trifolius - - - 97
Heuchera cortusa - - - 159
Heuchera viscida - - - - ib.

L

Laurus benzoin - - - 91
Lobelia Cardinalis - - - 177
Lobelia siphilitica - - - 207
Liatris *dubia* - - - - 223
Laurus pseudo-benzoin - - - 91
Laurus æstivalis - - - - ib.
Lobelia coccinea - - - 177
Lobelia reflexa - - - - 207

M

Medeola Virginica - - - 143
Medeola verticillifolia - - - ib.
Mitella Americana - - - 159
Melissa pulegioides - - - 165

O

Orobanche Virginiana - - 25
Orobanche uniflora - - - 229

P

Podophyllum peltatum - - 9
Polygala seneka - - - 111
Panax quinquefolium - - - 191
Phytolacca decandra - - 213
Podalyria tinctoria - - - 53
Polyrhizos Virginiana - - - 41
Pistolochia Virginiana - - ib.
Polygala Virginiana - - - 111
Phytolacca Americana - - - 213
Phytolaccæ vulgaris, &c. - - ib.

R

Rubus Villosus - - - 151
Rapuntium galeatum, &c. - - 177
Rapuntium maximum, &c. - - ib.
Rapuntium Americanum - - 207

Digitized by Google

S

Spigelia Marilandica - - 75
Sophora tinctoria - - - - 53
Spigelia oppositifolia - - - 75
Spigelia Americana - - - ib.
Satureja origanoides - - - 171
Solanum racemosum Americanum - 213
Solanum magnum Virginianum, &c. ib.
Typha aromatica - - - 63
Trachelium Americanum - - 177

W

Warnera Canadensis - - - 17

Z

Zanthorhiza apiifolia - - 203
Zanthorhiza tinctoria - - - ib.
Zanthorhiza simplicissima - - ib.
Zanthorhiza Marbosia - - - ib.

Digitized by Google

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INDEX

TO THE

ENGLISH AND VULGAR NAMES.

A

American Asarabacca - - 85
Allspice-bush - - - - 91
American Columbo - - - 103
Ague-weed - - - - - 125
Alum-root - - - - 159
American Sanicle - - - - ib.
American-Nightshade - - 213

B

Beech-drops - - - - 25
Broom - - - - - - 53
Bone-set - - - - - 125
Blackberry - - - - - 151
Blue Lobelia - - - - 207
Blue Cardinal Flower - - - ib.
Button Snake-root - - - 223
Blue-blazing Star - - - - ib.
Branching Phytolacca, or Virginian Poke - - - - - 213

C

Cancer-root - - - - 25
Calamus - - - - - 63
Carolina Pink-root - - - 75

Digitized by Google

Carolina Pink - - - - - 75
Colt's-foot - - - - - - 85
Canada Snake-root - - - ib.
Columbo - - - - - - 103
Columbia - - - - - - ib.
Columbo-root - - - - - ib.
Cross-wort - - - - - 125
Cucumber-root - - - - 143
Cardinal Plant - - - 177
Cardinal Flower - - - ib.
Cocum - - - - - - 213
Coakum - - - - - - ib.

D

Duck's-foot - - - - - 9
Dittany - - - - - - 171

F

Fever-bush - - - - - 91
Fever-wood - - - - - ib.

G

Gold-thread - - - - - 97
Ginseng - - - - - - 191
Garget - - - - - - 213

H

Horse-fly-weed - - - - - 53
High Blackberry - - - 151
Hairy American Bramble - - 151

I

Ipecacuanha - - - - - 9
Indigo-weed - - - - - - 53
Indian Pink - - - - - 75
Indian Ginger - - - - - 85
Indian Lettuce - - - - - 103
Indian Sage - - - - - 125
Indian Cucumber - - - - 143
Jalap - - - - - - - 213

K

Kidney-leaved Asarabacca - - 85

M

Mandrake - - - - - - 9
Myrtle-grass - - - - - 63
Mouth-root - - - - - 97
Marietta Columbo - - - 103
Mountain Dittany - - - 171
Maryland Cunila - - - ib.
Mint-leaved Cunila - - - ib.
Mountain Calalæ, or Pök-weed 213

O

Officinal Milk-wort - - - 111
One-flowered Cancer-root - 229

Digitized by Google

P

Pink-root - - - - - - 75
Pennyroyal - - - - - 165
Parsley-leaved Yellow-root - - 203
Poke - - - - - - - 213
Pigeon-berries - - - - - ib.
Poke-weed - - - - - - ib.

R

Rattle Snake-root - - - 111
Rattle Snake's Master - - - 223

S

Snake-weed Root - - - 41
Snake-root Birth-wort - - - ib.
Sweet-flag - - - - - - 63
Sweet-smelling Flag - - - ib.
Sweet Cane - - - - - ib.
Sweet Grass - - - - - - ib.
Sweet Myrtle-grass - - - ib.
Spice-wood - - - - - - 91
Spice-berry - - - - - ib.
Seneka Snake-root - - - 111
Senega Rattle-snake-root - - ib.
Standing Blackberry - - - 151
Shrubby Goose-foot - - - 183
Scarlet Lobelia - - - - 177
Skoke - - - - - - 213

T

Thorough-wort - - - - - 125
Thorough-stem - - - - ib.
Thorough-wax - - - - - ib.

U

Unsteetla - - - - - - 75

V

Virginian Broom-rape - - 25
Virginian Snake-root - - - 41
Vegetable Antimony - - - 125

W

Wild Lemon - - - - - 9
Wild Indigo - - - - - 53
Worm-grass - - - - - 75
Wild Ginger - - - - - 85
Wild Allspice - - - - - 91
Wild Columbo - - - - 103
Wild Basil - - - - - - 171
Worm Seed - - - - - 183
Worm Goose-foot - - - ib.

Y

Yellow-root - - - - - 17
Yellow-wort - - - - - 203

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